

ELECTRIC REFRIGERATION NEWS

The business newspaper of the electric refrigeration industry

VOL. I. No. 11

DETROIT, MICHIGAN, MARCH 2, 1927

PRICE FIVE CENTS

DETROIT SECTION A.S.R.E. ORGANIZED

C. C. Spreen Chosen President— Charter Membership of 200 Is Planned

The Detroit Section of the American Society of Refrigerating Engineers was organized February 23, when more than 100 Michigan refrigeration engineers, central station executives, and manufacturers' representatives met at an informal dinner at the Detroit Engineers' Society, 478 West Alexandrine Street, Detroit, and formed a permanent organization, with Charles C. Spreen, chief engineer, Kelvinator Corporation, as president. The other officers elected were: Lester J. Kielholz, chief engineer, Frigidaire Corporation, first vice-president; W. D. McElhinny, vice-president in charge of sales, Copeland Products, second vice-president; D. G. Ellis, Kelvinator Corporation, secretary; A. D. McLay, Detroit Edison Company, treasurer. All of the officers are residents of Detroit, except Mr. Kielholz.

The meeting was called to order by George B. Bright, the principal factor in the formation of the new section. The quarters of the Detroit Engineers' Society was chosen as a permanent meeting place, and the next date set for April 18.

Following the election of officers, short talks were made by W. D. McElhinny, F. B. Riley, consulting engineer; Harry G. Sloane, past president, A. S. R. E.; R. West, chief engineer, Rice Products; Ira Reindel, chief engineer, Norge Corporation; A. C. Wallich, Wallich Ice Machine Company, Detroit; C. W. Chapman, chief engineer, Detroit Refrigeration Co.; L. W. Larsen, chief chemist, Nizer Corporation; G. W. Mason, vice-president and general manager, Copeland Products; Gordon Muir, advertising manager, Nizer Corporation; A. D. McLay, Detroit Edison Company; R. H. Horner, manager, City Ice & Coal Co., Flint, Mich.

The organization was formed with 75 members. Since that time the membership has doubled and an immediate goal of 200 members has been set. According to Mr. Bright, this number will exceed the membership of either Chicago, St. Louis or Milwaukee, the three other sections separate from the parent society in New York City. Memberships are classified as "A" and "B." The former is for members belonging to the parent society, and the latter for affiliated members. Both memberships cost \$5, which includes a subscription of *Refrigerating Engineering*.

The following committees were appointed: Membership: W. D. McElhinny, chairman; George B. Bright and O. F. Stauder.

Program Committee: George B. Bright, chairman; Glen Muffy, L. A. Philipp.

New Membership: C. F. Belshaw, chairman; F. B. Riley, L. E. Rollins, Glen Muffy, A. G. Wallich, E. J. Mueller, J. B. Johnson, B. R. Wheeler.

Entertainment: R. D. Hotton, chairman; F. R. West, L. A. Philipp, A. D. McLay, Glen Muffy.

Those present at the meeting outside of Detroit were: Whitney Giffard, Sandwich, Ontario; C. E. Garrison, Flint; J. B. McConnell, Jackson; L. A. Philipp, Ann Arbor. The following members were present from Detroit:

William H. Adams, Geo. B. Bright, C. C. Bupp, Edward Barger, Fay D. Bassett, C. F. Belshaw, Roger K. Braun, Henri A. Brysselbout, T. W. Buechler, L. G. Burgess, H. G. Chamberlin, Chas. W. Chapman, E. B. Cheetham, A. A. Colegrove, R. C. Doremus, Wm. F. Eberlin, Wm. E. Egerer, D. G. Ellis, Fred R. Erlach, Patterson Farmer, A. Hafke, Edward Heitman, E. F. Herbecker, R. H. Horner, R. K. Hotton, G. H. Irish, W. H. Irwin, J. B. Johnson, John Josaitis, Robert June, R. W. Kelley, L. E. Koontz, Walter A. Kuenzli, Chas. M. Lake, L. W. Larsen, Carleton J. Lauer, Chas. B. Leeson, W. D. McElhinny, A. D. McLay, Ray M. Martin, G. W. Mason, Edward M. May, R. K. Merrill, Glen M. Muffy, Gordon Muir, Emmet J. Mueller, O. F. Nelson, R. G. Nelson, I. H. Reindel, F. G. Riley, L. E. Rollins, Hugh J. Scullen, O. W. Semewalt, Charles C. Spreen, Geo. L. Spring, Oscar F. Stauder, A. W. Streed, G. Strelinger, R. H. Swart, C. H. Tanager, L. A. Tegler, Charles C. Thomas, H. E. Thompson, Charles S. Thomson, Frank E. Tuttle, Walter G. Von Meyer, A. C. Wallich, F. R. West, Bud R. Wheeler, W. G. Wright.

Fine Exhibit at New York "Own Your Home" Show

The outstanding feature of the "Own Your Home" Building and Equipment Exposition held at the new Madison Square Garden in New York, February 19 to 26, was the group of electric refrigeration exhibits. Frigidaire, Servel, Lamson, Rice, Coldak, Iroquois were among those having elaborate and attractive exhibits. According to reports the demonstrations were well attended and much interest was shown.



CHARLES C. SPREEN

Chief engineer, Kelvinator Corporation, elected president of newly organized Detroit section of American Society of Refrigerating Engineers.

PURDUE SENIORS CHOOSE ELECTRIC REFRIGERATION

When Given Option in Design Work Class Unanimously Selects Household Machine

When the senior engineers in the School of Mechanical Engineering at Purdue University, Lafayette, Indiana, were given optional selection of six hours per week of design work on large ammonia compressors or on a small household machine, the electrical unit was unanimously chosen.

The course in refrigerating engineering at Purdue consists essentially of two lectures or recitation hours per week, where theoretical and practical considerations are discussed, and six hours per week of design work. For the first semester design, the 18 students in the class were given their choice of design work.

E. F. Burton, assistant professor of mechanical engineering, is in charge of the refrigerating engineering course.

ELECTRIC REFRIGERATOR LUNCHES POPULAR WITH SCHOOL KIDS

Here is how Mrs. Licha Corbett, of Boulder, Colorado, is making electric refrigeration in her little "Bright Spot" grocery, pay her a comfortable income. From her refrigerator, she sells eskimo pies, milk, pop and different sandwiches to the school children of the public school across the street. And the sales from the refrigerator average \$35 per day!

Her little store is located in the residence section of Boulder and the power-bill for her Kelvinator, lights in the store and residence next door costs but \$8 per month.

Before Mrs. Corbett installed electric refrigeration, her ice bill always exceeded \$15 per month, and there was always a waste of food-stuffs. She says that \$2,500 would not buy this equipment, provided she could not secure another. And there is no mystery about her success, she states. "With but very little capital any little 'Bright Spot' grocery located near a public school can do the same thing."



LEWIS AND LUNDQUIST VISITING IN EUROPE

Howard A. Lewis, vice-president of the Electric Refrigeration Corporation, is expected to return April 1 from a visit to the principal countries of Europe.

R. A. Lundquist, sales manager of the export division of the Electric Refrigeration Corporation, who sailed from New York, January 15, with Mr. Lewis, after a brief visit in London has been visiting in Egypt and is now on his way to India. He will visit China and Japan and is expected to return to Detroit sometime in June.

NOTICE!

Subscription Rate to be Advanced April 1

The present special introductory subscription rate of 75 cents per year, two years for \$1.00, will expire April 1. On that date the rate will be advanced to \$1.00 per year.

Now is the time to take advantage of the very low rate and make sure that you will receive *Electric Refrigeration News* regularly. See coupon on last page.

KELVINATOR AND NIZER MOVE TO NEW PLANT

No Shut-down While Moving— New Factory to Provide for Increased Production

The new factory of the Electric Refrigeration Corp. in Detroit is completed. As originally planned the manufacturing operations of the Kelvinator and Nizer Corporations are to be consolidated in this plant, and their present isolated factories closed and sold.

On February 15 the first machines were installed in the Nizer division's bays. Part of the machine shop operations are now being carried on in the new plant, and it is expected that Nizer will be completely moved by March 10. When this is done, all of its manufacturing will be carried on there, except cabinet making, which will be continued in the original Nizer factory on Mackie Ave.

The Kelvinator Corporation has for some time been moving some of its machine shop equipment to the new plant. There will be no complete shut-down in any of the present Kelvinator plants, as the moving operations have been so planned as not to interrupt production, which is also true of Nizer moving plans.

Officials of the Electric Refrigeration Corporation expect production in the new plant to be complete and up to normal in all departments by March 15. Plans are being worked out for a material increase in both Kelvinator and Nizer outputs.



C. K. WOODBRIDGE

Newly elected executive vice-president and general manager of the Electric Refrigeration Corporation.

COPELAND DISTRIBUTORS TO CONVENE AT DETROIT

Distributors of Copeland Products, Incorporated, to the number of 250, and from all points in the United States, will meet in convention March 7 and 8 at the Statler Hotel, Detroit. Sales promotion problems and those connected with the distribution of electric refrigerators in the United States will be discussed.

W. D. McElhinny, vice-president in charge of sales of Copeland Products, Incorporated, is arranging the details of the program. It is expected that this will be one of the largest sales conventions ever held by the company and that it will do much to stimulate business during the present year.

"In view of the fact that 1926 showed a 960 per cent increase in sales of Copeland Products over 1925, and thus far January and February sales are 300 per cent above sales during the same months for 1926, we anticipate that 1927 will be our best year thus far," said Mr. McElhinny.

WOODBIDGE TO MANAGE E. R. C.

Dictaphone Man Becomes Execu- tive of Electric Refrigeration Corporation

C. K. Woodbridge has resigned as president and director of the Dictaphone Corporation, New York, to become director, executive vice-president and general manager of the Electric Refrigeration Corporation. As president of the International Advertising Association he has won national and international recognition.

During the past year Mr. Woodbridge traveled over 30,000 miles through the United States, England, France, Germany and Belgium and other countries in the cause of advertising. At the International Convention of Associated Advertising Clubs held at Philadelphia last June, the French government conferred upon him the Chevalier of the Legion of Honor for his service through advertising in furthering good-will between the United States and France.

He is a graduate of Dartmouth College and is president of the Dartmouth College Club of New York City. He has also been president of the Advertising Club of New York, of the New York Sales Manager's Club, secretary of the American Society of Sales Executives and president of the National Association of Office Appliance Manufacturers. He is a director of the National Better Business Bureau, a member of the American Academy of Political and Social Science and a member of the Union League of New York.

Before becoming president of the Dictaphone Corporation, Mr. Woodbridge was sales manager of the Kellogg Products Co., Inc., Buffalo, N. Y., and of the Loose-Wiles Biscuit Co., of Boston and New York.

He entered upon his new duties at the Electric Refrigeration Corporation, March 1.

ICEOLA PLANT OFFERED AT PRIVATE SALE

Paul Richey, receiver for the Iceola Corporation, Indianapolis, Ind., announces that the assets of the company including machinery, materials and patents will be offered as a going concern at a private sale to be held at 851 Consolidated Bldg., on Saturday, March 5.

The Iceola Corporation was formed in January, 1926, and took over the assets of the Valley Engineering Company of Dayton, establishing its plant in Indianapolis in March last year.

CINCINNATI GROCERS ARE GUESTS OF FRIGIDAIRE

One hundred and fifty grocers, delegates from the Cincinnati Retail Grocers' Association, were guests of the Frigidaire Corporation, February 17, while visiting the Ohio Food Show at Dayton.

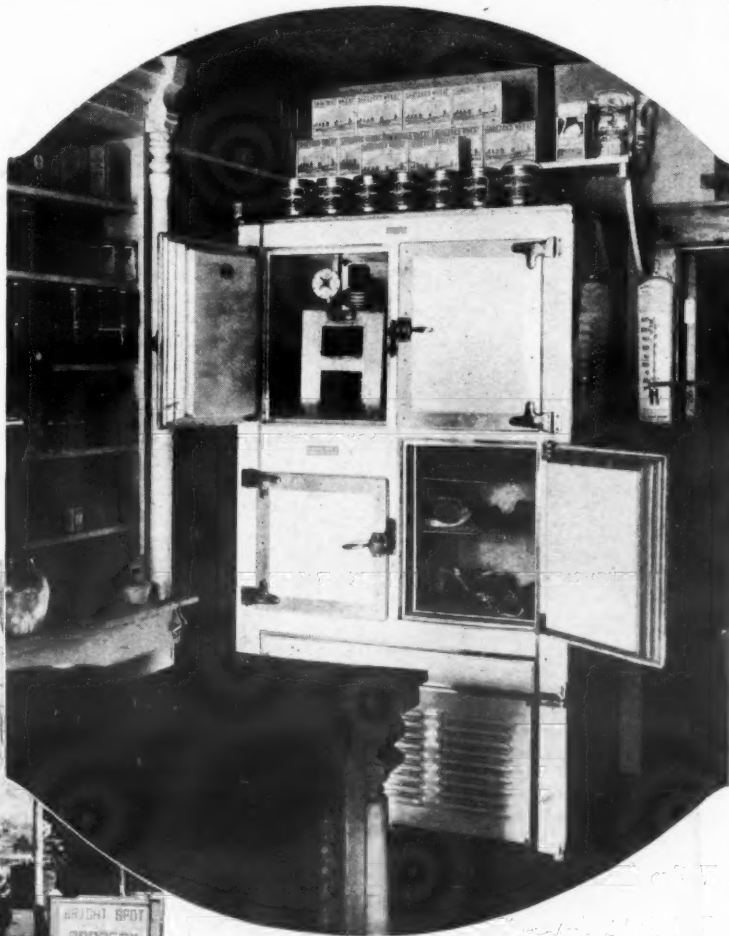
The grocers arrived in a body at Moraine City, where the Frigidaire plant is located, and after inspecting the new cabinet plant, were served dinner at the new plant cafeteria.

TAYLOR IS COPELAND ADVERTISING MANAGER

Effective March 1, Albert M. Taylor, for several years sales promotion manager and advertising manager for the Franklin Motor Car Company, and formerly advertising manager of the Velie Motors Corporation, will assume the duties of advertising manager of Copeland Products Incorporated. He succeeds H. N. McArthur, who recently resigned.

New York Section A. S. R. E. to Discuss Electric Refrigeration

The New York Section of The American Society of Refrigerating Engineers will hold its next meeting March 30 at the Machinery Club, 50 Church Street, New York. A supper will be served at 6:30 P. M., to be followed by a program devoted to the subject of electric refrigeration. After the addresses, the party will be conveyed to the showrooms of the New York Edison Company at 15th street and Irving Place, where there will be a display of all the leading makes of electric refrigerators. Stephen Benis, 130 East 15th St., New York, is president of the New York Section.



Look for the "Bright Spot" Grocery
Near Every Public School—Every One
is a Prospect.

Iroquois Distributor in Boston

H. E. Holbrook Co., 8 Federal St., Boston, Mass., has become distributor for Iroquois electric refrigerators and will have the formal opening of their new showrooms this month.

Tubing for condensers

Smooth, no possibility of scale. Up to 100 foot lengths. Formed to your order. Write for prices. 1431 Central Ave., Detroit, Mich.

WOLVERINE
SEAMLESS COPPER AND BRASS TUBING

WILL HOLD COURSE IN CRATE CONSTRUCTION

The semi-annual short course in box and crate construction given by the U. S. Forest Products Laboratory, at Madison, Wisconsin, will be held from April 18 to 23. These courses have been of definite interest to manufacturers. In a recent class, manufacturers of soda fountains and electrical equipment were represented, along with machinery, automobile, shade-roller, oil well supply, linoleum, etc., manufacturers. The principles underlying good container construction will be presented by means of lectures and demonstrations.

Give Electric Refrigerator a Kitchen Window Display

Window Displays Should Have Naturalness and Human Interest
— Examples of Incorrect Display Methods

By Ernest A. Dench

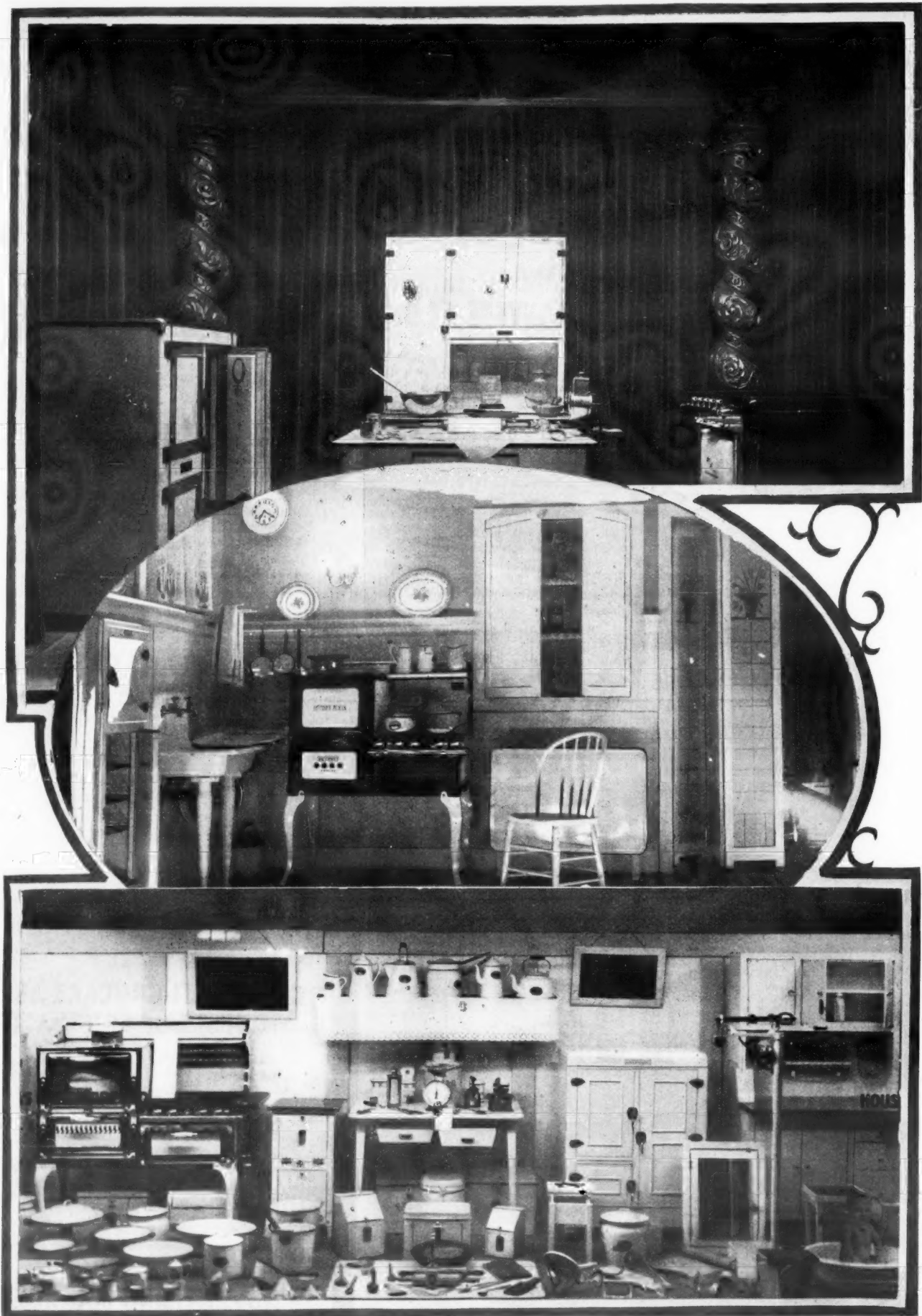
The local dealer—a service organization which handles nothing but the electric refrigerators—is not always sold on the kitchen setting as a show window attraction. Too much equipment associated with the kitchen seemingly tends to distract consumer attention from the main issue—the electric refrigerator. Yet, on the other hand, the kitchen is the logical environment for electric refrigeration, and is favored for ordinary ice box trims by furniture, hardware and houseware stores.

feasible. The local electric utility, if it does not sell electric refrigerators, will, of course, be a willing party to the scheme.

The electric refrigerator dealer-service agent will have to, for the most part, tackle the kitchen setting on his lonesome. The preliminary cost, labor and effort will be quite an item, but if the "props" are, with variations, incorporated in a number of displays, not one following the other—for a continuous procession of kitchen trims is about as dull as a sameness in diet—but varied with other subjects during the year, the outlay display will be reasonable.

In making a stab at this kitchen setting, the following are some of the essential features to give an air of reality to the display:

1. As the dealer does not employ his own display man, it will be a wise procedure to hire a local display service (they will be found in most towns) to make



(ABOVE): A kitchen window setting which verges on the theatrical and which it is well to avoid.

(CENTER): An ideal setting for electric refrigerators—emphasizing the space-conserving kitchenette.

(BELOW): Overcrowded and junky type of kitchen setting and which is not to be recommended.

In the case of electric and gas utility companies, or the electrical dealer, many a display revolves around the kitchen setting.

The kitchen needs to be regarded from a broader perspective. Fortunately this new field has attracted big-visioned men who are receptive to new ideas and changes in their present merchandising methods, if they can be improved. Were they not men of superior mental calibre they would not be entrusted with the highly specialized vocation of selling and servicing electric refrigerators.

The motor car dealer, whose mode of operations is the same as the electric refrigerator dealer-servicer, came face to face with practically the same situation years ago. The question was: should he sell cars or the love of the "Great Outdoors?" He tossed his hat on the latter rack, and quickly discovered that if he created a longing for travel, the car sale would automatically follow. It meant, in order to do this, that (without retailing the actual paraphernalia needed for the sports) he would have to boost tennis, golf, fish-

ing, hunting, swimming and camping, all of which subjects made his show windows take on the complexion of a sporting goods store; in fact, the sporting goods dealer did (and still does) facilitate the plan by loaning him the necessary props. The car fitted into the picture and seemed a living part of it, yet one could not say that the car was subordinated to the sports accessories. The sporting goods dealer benefited just as much as did the car dealer, for one without the other—and the car demand would not have attained such rapid growth.

Cooperation Difficulties

The main difference with the electric refrigerator dealer-service organization is that the trades on which he may rely for kitchen co-operation will feel that they cannot work hand in hand with a lusty youngster already dipping into their refrigerator sales. Here and there may be encountered a furniture or hardware store which can vision the electric refrigerator as an ally rather than an enemy, but not enough to regard the plan as

recommendations for the show window, and also to build a kitchen that will be semi-permanent yet portable.

2. If the dealer feels he is capable of undertaking the job himself, with the aid of a local carpenter, his requirements will be roughly as follows:

The background and sides entirely enclosed in cream painted boards, easily removable, treated with an outer coat of kalsomine or a typical high-grade kitchen wallpaper. At least one or two dummy casement windows should be built into the background and sides, and draped with cheery white scrim curtains. Tiled linoleum on the floor. If a cupboard, too, can be built into the wall, and another nook or alcove provided for the refrigerator, so much the better. Who has not seen a kitchen in a store window that looked as though it had been blown there overnight?

A Perfect Kitchen Display

We have yet to see a more perfect example of the substantially built kitchen (Continued on page 3, column 2)

*The Universal Cooler
fills a universal need!*

An All Around Attractive Dealer Proposition

OUR staff of capable field supervisors is maintained to assist in establishing distributors and dealers in the electric refrigerator business.

THE Universal Cooler has been in actual use for five years, giving utmost satisfaction with a minimum of service requirements.

We are offering some excellent territory, carrying with it a profitable selling franchise.

WRITE at once for details.



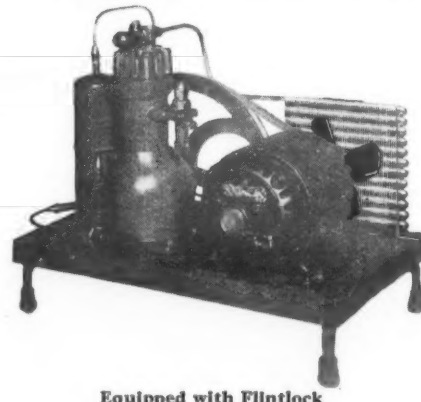
UNIVERSAL COOLER CORPORATION
Eighteenth and Howard Detroit, Michigan

SPECIALISTS
IN
PORCELAIN
ENAMELING
FURNACES AND EQUIPMENT
FOR
PORCELAIN
ENAMELING
REFRIGERATOR LININGS
AND PARTS

Write for "Men and Methods"

THE FERRO ENAMEL SUPPLY COMPANY
Cleveland, Ohio

FLINTLOCK CONDENSERS EFFICIENT—ECONOMICAL—COMPACT

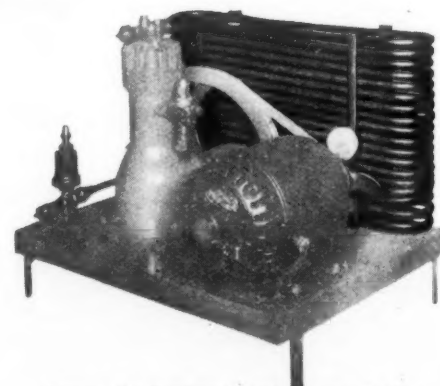


Equipped with Flintlock

"UNIVERSAL COOLER" has standardized on Flintlock condensers. The new unit equipped with Flintlock and the old unit is illustrated herewith.

An interesting and important book on the application of the Flintlock Condenser to the Refrigeration Industry is now available and will be mailed on request to manufacturers, distributors and dealers.

WRITE FOR YOUR
COPY TODAY



Same Unit Equipped with Copper Tubing

FLINTLOCK CORPORATION
2102 Buhl Bldg. Detroit, U. S. A.

Says Organized "Man Power" Is Big Factor In Copeland Success

McElhinny Emphasizes Importance of Trained Organization, Educated By Factory Co-operation

"We believe that success in the electric refrigeration business depends first, on having a good product, built in enough models and sizes to supply the household field, and sold at fair prices," said W. D. McElhinny, vice-president in charge of sales of Copeland Products, Inc., in discussing the Copeland sales policy for 1927. "Secondly, we place the greatest stress on the necessity of organized man power."

"Ours is essentially a business in which man power, properly educated and properly directed, is absolutely essential. Our whole plan of merchandising is based on maintaining in the field a large sales force which contacts daily with a maximum number of prospects and fully capable of presenting Copeland electric refrigeration intelligently and in the most convincing manner."

"The public is generally convinced that electric refrigeration is a good thing to have in the home, but is still in the stage where the merchandisers must carry the story to the individual prospect and do a high-grade piece of selling work to obtain the order."

"In order to build the proper line of machines, to sell them at a proper price, and to obtain the proper salesmen, the manufacturers of electric refrigeration must have a national sales and service organization covering the entire country. That this national organization may make the proper number of sales, it should have a plan of co-operation with distributors and dealers which will guarantee the maintaining of the largest possible amount of man power throughout the United States. We believe that this man power must be continually educated and trained in the selling of Copeland household electric refrigeration, and that it must be assisted by factory help through close supervision and through special men who will demonstrate, through actual work in the field with distributors' and dealers' salesmen, how to close business."

"A network of conventions, group meetings and sales schools must be maintained by the factory throughout the country, and a similar network of meetings and schools must be maintained by the distributor for dealers and salesmen, all under the supervision, in each district, of experienced refrigeration men from the factory. Each distributing territory must be divided into logical parts to be handled by distributors' supervisors. Closing help, by factory closing men, and the daily maintenance of closing help by special men in the employ of each distributor, is necessary. These men work with crews of salesmen in the distributor's headquarters city, where he maintains a retail organization, and also with dealers' salesmen in outlying territory."

"Distributors and dealers should only have as much territory as they can cover efficiently. Large territories usually result in additional expense to distributors and dealers, whose volume only comes from such territory as they should logically handle. This results in the rest of the territory lying idle, due to the greater expense involved in securing business at distant points. Not only must the selling problem be very carefully considered in making the size of territories, but the servicing of machines is another matter of vital bearing on the size of territories."

"A great deal of the success of the dealer and distributing organization depends upon the factory sales promotion department. We believe that the Copeland sales promotion department stands second to none. We know that our sales promotion work has been of enormous advantage to Copeland distributors, dealers and salesmen. The results speak for themselves."

"Orders have been pouring in since January 1 in a most satisfactory volume from all parts of the United States, and the organization is making itself felt so strongly in the field that there is a big demand for franchises. Persons desirous of selling electric refrigeration seem to be making a very careful study of the business in general, the products of manufacturers and the manufacturers' set-up, from a sales promotion and factory help standpoint."

"We are holding a convention in Detroit on March 7 and 8 which will be attended by distributors from all parts of the United States. These conventions have been so attractive in the past that distributors have been demanding another one be held."

"At this convention, which will be devoted almost entirely to sales promotion plans for the balance of this year, matters of extreme importance will be presented to the organization, and we are confident that as a result of these plans, Copeland distributors, dealers and salesmen will be in a position to immediately show another handsome increase in sales volume."

"Immediately after the convention, group meetings will be held in New England, New York, Pennsylvania, Virginia, Kentucky, Ohio, Michigan, Wisconsin, Missouri, Alabama, Florida, Texas, Oklahoma, Kansas, Washington, California and Utah. These group meetings will be conducted by a number of factory men, who will carry with them sets of scenery and will put on plays illustrating the selling and servicing of Copeland Refrigeration."

GIVE REFRIGERATOR A KITCHEN WINDOW DISPLAY

(Continued from page 2, column 3)

than was recently installed by Abraham and Straus, Inc., Brooklyn, New York, and which brings to mind what kind of a home the kitchen should represent.

Abraham and Straus equipped an average size side window as a modern kitchenette. The walls had a look of permanence about them. The top half of the walls were painted a pleasing cream color, with the lower half—all woodwork—painted in Delft blue—a happy choice. A cream painted cupboard, the door of which was half open, was built into the wall at the rear left. The tiny cupboard shelves, covered with white oilcloth, contained Delft chinaware. Below the table, to conserve space, was a folding white enamel table. A small enamel gas cook stove, stocked with a representative number of pots and pans, stood at the rear left. A small porcelain kitchen sink was built in along the left side wall. Its neighbor, also snugly inserted in an aperture, was a white enamel refrigerator. The casement window above the sink was draped with white casement curtains, bordered with a Delft blue floral pattern. Along the ledge dividing the woodwork from the upper wall part were several handsome china plates, with a white enamel clock hung high on the wall. Near the right rear was an opening, evidently a door, draped about two feet behind with heavy drapes to suggest entry to another room.

Cream and white checked linoleum took care of the floor. There was also a blue and cream enameled kitchen chair at the center of the floor, near the folding table. The entire lay-out, as will be gleaned, emphasized the space-conserving kitchenette, or small kitchen.

A Display to Avoid

As a marked contrast of "what not to do," let us "pull to pieces" another display that was cluttered up with about enough accessories to fill half a dozen kitchens, and lacking sufficient room for even the housewife to turn around.

The floor division, as will be noticed from the photograph reproduced on this page, was a perfect mass—or mess—of pots and pans and other appliances. Even if this wasn't enough, there was a baby doll, a la September Morn, sitting up in his little bathtub, with two pairs of baby scales and a medicine cabinet in the vicinity. Were it not for the orderly arrangement of the one hundred and one items, we would have suspected that the infant had been on the rampage. Distributed along the rear in an unbroken line, with little regard for household convenience, were, respectively, a gas cook stove, a fireless cooker, a kitchen table (laden to capacity with domestic tools) and bread and flour boxes dumped underneath the table, and a shelf above with more pots and pans. Then came the enamel refrigerator, followed by the kitchen cabinet, which, strange to report, was devoid of anything edible. The background—the only desirable feature—was enclosed with cream enameled paneling. Such a kitchen would send any orderly housewife into hysterics.

Ruined by Theatrical Effects

Here we have the happy medium in the kitchen environment, thrown out of key by an attempt to mingle a hint of the theatre. This was the big failing, in our estimation. One cannot associate a rich velour draped background, with gilded columns in front of it, with the most prosaic room in the American home. This display manager has the Cecil de Mille movie elaborateness of ideas. The four pieces of merchandise—a large refrigerator at the left, a kitchen cabinet at the center rear, with a porcelain table in front of it, and a gas cook stove at the right—also had a stilted appearance about them. Frankly, we cannot warm up to such a display, and we hazard a guess that few housewives did.

Points To Watch For

False economies. One of these is the use of crepe paper because it is cheap. Crepe paper has its place in display work and is a desirable ally, but the only excuse for its use in a kitchen setting, is for covering kitchen shelves. It looks cheap and

unreal when employed to cover the walls and floor.

A strong dose of human interest adds punch and life to a display obtainable in no other way. Such an element is invariably brought about through the introduction of wax figures, life size cut-outs and kewpie dolls. Wax models run up into an expenditure of several hundred dollars apiece. Oftentimes one may be borrowed free of charge from a local women's specialty shop or the men's clothier in return for the customary show card courtesy mention. And the model will be stylishly dressed, too. Cut-outs may be turned out by a local sign artist or supplied by your manufacturer as part of his dealer-help service.

There is a false economy tendency to represent adults by small kewpie dolls. This is okay if your kitchen is also on a miniature scale—doll's size, we will say—but it looks incongruous, to say the least, when you have adult kewpies roaming around a kitchen that is hopelessly out of proportion to their sizes. It reminds one of "Jack, the Giant Killer."

For a child incident, there is nothing to better the kewpie model. In one kitchen display, crowds were attracted by a tiny tot (a large doll) clad in a gingham dress, who sat on the floor in front of the stove, apparently playing with a toy kitchen. Her mother, five feet, six inches of wax, stood beside the stove, teakettle in hand.

The kitchen equipment you need: Kitchen cabinet, kitchen table and chair, gas or electric cook stove, pots and pans and dishes. The kitchen sink contributes the final touch.

Once the kitchen setting is installed in the show window, it opens up a wider field of selling activities. One use to which it might be put lies in the staging of food demonstrations, with special emphasis on the part played by the electric refrigerator, under the practical wing of a local domestic science expert. Gas and electric utility companies have found this plan admirable propaganda, and so will the electric refrigerator dealer.

DO YOU WANT NEW DEALERS?

We can help you get them

Direct Mail, used as Electrograph knows how to use it to extend dealer organizations, will produce.

In 1926, Electrograph put into operation the advertising and sales machinery that resulted in a prominent manufacturer adding two thousand new dealers to his organization.

And the cost per new dealer was surprisingly low.

Electrograph offers you the experienced counsel that avoids the pitfalls and disappointments that too often attend campaigns for new dealers.

The same knowledge and skill that has made Electrograph the largest producer of automotive Direct Mail is available to the sales organizations of electrical refrigeration manufacturers.

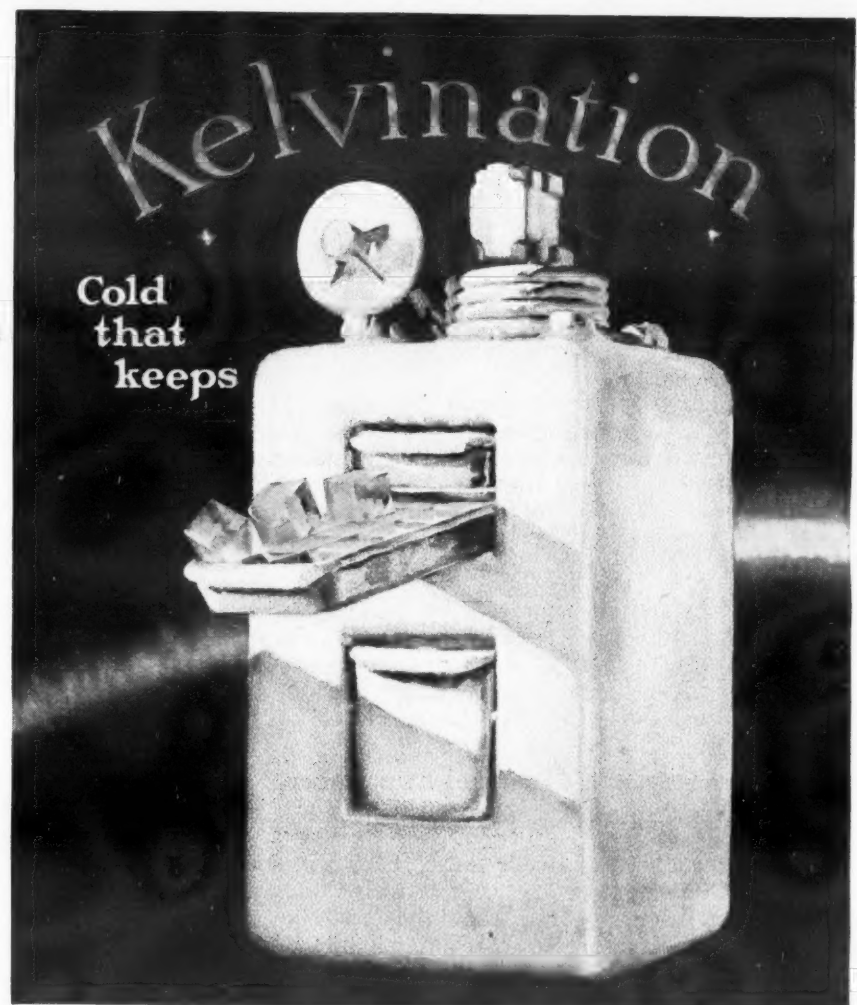
Write, phone or wire for particulars.

THE ELECTROGRAPH COMPANY
Home Office: 725 West Grand Boulevard, Detroit, Michigan

Electrograph

Cheapest DIRECT-MAIL Realized
Individualized Distributed

In Illinois, Electrograph Advertising Service, Inc., Chicago, is licensed to operate under Electrograph patents.



Twelve Years' Leadership

Insures the Impregnable Position of Kelvinator Today

Kelvinator has always led. Since it pioneered and built the first successful domestic electric refrigerator in 1914, it has been the pattern for the industry.

Its design is correct. Its mechanical perfection is established. Its servicing record is the lowest in the history of the industry.

Kelvinator embodies in the simplest me-

chanical unit the principles of scientific refrigeration discovered by Lord Kelvin, whose name it bears and whose fame it perpetuates. What Kelvinator pioneered it has perfected and will continue to perfect with the means, the organization, the equipment and the experience to preserve the leadership it has established.

KELVINATOR, 2040 WEST FORT STREET, DETROIT, MICHIGAN
KELVINATOR OF CANADA, LTD., 1120 Dundas St. East, LONDON, ONTARIO

Kelvinator

The Oldest Domestic Electric Refrigeration



ELECTRIC REFRIGERATION NEWS

The Business Newspaper of the Electric Refrigeration Industry

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MARCH 2, 1927

Automobile Men in the Electric Refrigeration Industry

Frequent comment is made regarding the number of men, previously connected with the automobile industry, who are entering the electric refrigeration field as manufacturers, distributors or dealers. Opinion differs somewhat as to advantages and disadvantages of automobile experience as applied to the problems of making and marketing electric refrigerators.

There are, of course, many points of similarity between the automobile and the electric refrigerator when considered from the viewpoints of the market and the distribution methods. It is equally true that there are many phases of these problems in which the two industries are wholly dissimilar.

It is often pointed out that "everybody wanted a car"—that it was unnecessary to "sell the idea" before selling the product. In contrast with this the idea of electric refrigeration must be sold—the public must be "educated" to the need for the service. Emphasis is also laid on the "replacement" factor in the automobile business. As yet the electric refrigerator industry can scarcely hope to get buyers to discard last year's equipment in order to get the latest model. Write your own ticket as to the exact significance of these and other differences between the two industries.

It is our best guess that experienced and successful automobile men will have comparatively little difficulty in figuring out these differences when it comes to sales appeal, service policy, time payments, and a score of other questions. They will probably tackle such problems and go from the known to the unknown with more than ordinary speed and accuracy.

Newcomers in Electrical Field Have Difficulty in Understanding Central Stations

We will, however, hazard another guess that "four out of five will get pyorrhea" when it comes to the problem of "public utility relations," alias "central station policy," or in common language, "what are we going to do about these electric light companies?" The automobile man, in fact, any one whose past experience has been in non-electrical fields, may well be pardoned for his difficulty in comprehending the ways and methods of the electric service companies.

Cars require gas, to be sure, just as refrigerators require juice. But nobody has to worry about how Standard is going to get its oil or where the next filling station is coming from. Furthermore, the gas station man doesn't care what kind of a car you drive or where you are going with it. "Jimmy, the courtesy man," will fill 'er up smilingly and agree with you that it's a great little bus, even though it leaks at every joint and shows signs of shaking itself to pieces.

Not so with the central station man. Supposedly he wants to sell current, but at times he appears to be almost persnickety about who, when and where his service is going to be used. Does he rush out to meet you when you drive up with your new "current consuming" device? He does not. He looks at it suspiciously and wants to know its "characteristics."

Public Policy, Engineering and Financial Experience Have Made Central Station Men Cautious

If you insist, he will appoint engineers to make tests. They will ponder over it while they talk at length about peak load, power factor, maximum starting current and operating cycle. In due time they will solemnly consider entrance box capacity, separate circuit requirements, minimum monthly charge, maximum demand, and sliding scale of rates. A committee will then be appointed to collect data and present recommendations on necessary code revisions. Later a convention will be held to discuss the pros and cons of putting the device on a separate meter at the power rate, versus allowing it to be connected to a convenient outlet on the lighting circuit, with the possibility of a reduction in the secondary rate, provided, of course, that nothing in these regulations shall be construed to apply to devices of over 660 watts capacity.

Having arrived at an agreement in the form of a resolution which will be submitted for approval at the next annual convention, the delegates will depart to their respective cities and proceed to set up a merchandising policy, each according to his own lights, but with due regard to the "general merchandising policy" of the holding company of which his company is a subsidiary.

Varied Merchandising Methods Make it Necessary to Study Each City Individually

The net of these deliberations will be a decision on the part of the central station in the city of A—to take no action at present, but await further developments. In city B—, however, \$50,000 will be appropriated for newspaper advertising and other market development activities. In city C—, it will be decided to recommend and actively sell the Cool-Age machine exclusively. City D—, on the other hand, will display and demonstrate three approved makes, but will not aggressively compete with local dealers. City E— will adopt a plan whereby all reputable makes are displayed in the company show rooms, no sales being made, but all inquirers referred to dealers through the local electrical league.

Note No. 1—If you want to stall the new executive lately from the automobile field, ask him "What is going to be your policy with reference to central stations?"

Note No. 2 (to the automobile man)—The answer to the above question is, "Which central station are you referring to?"

Electric Weather

"Machine-made weather" is produced at will in a government experiment station in Pittsburgh, Pa., by the combined use of electric refrigerators and other apparatus together with steam heat. Temperatures range from zero down to 180 degrees Fahrenheit, and humidity from 15 to the saturation point—100. Miniature storms are produced by powerful little electric fans. This manufactured weather is used in the studies that are made to determine the effects of sudden weather changes upon respiratory diseases such as miners often suffer when they go in and out of mines at all seasons of the year.

SELL 100,000 SHARES ADDITIONAL STOCK

New Issue of Electric Refrigeration Corporation Stock Now Makes Total of 724,000 Shares Outstanding

The Electric Refrigeration Corporation has sold privately 100,000 shares of its capital stock to a banking group headed by Prince & Whitely. The stock has been underwritten at \$33 per share.

The new financing will replace in the treasury the capital expenditures during the last six months at Detroit and Grand Rapids. It is expected that application will be made to list the new issue of stock on the New York Stock Exchange, making a total of approximately 724,000 shares outstanding.

PRIZE SERVEL WON BY PORTLAND WOMAN

The prize contest held recently by the Power Plant Engineering Company, of Portland, Oregon, for the best Servel electric refrigerator advertisement written by the general public, was won by Mrs. H. P. Edward, of that city. The prize award was a \$265 Servel refrigerator.

Nearly all of the hundreds of advertisements submitted revealed an intelligent appreciation of the electric refrigerator, and the officials of the Power Plant Engineering Co. say that the new data and viewpoints expressed by the contestants will be of value to the company in extending their market.

Kelvinator-Lathrop of Hartford Incorporates for \$100,000 Authorized Capital

The Kelvinator-Lathrop Company, Hartford, Conn., which has conducted a sales office at 438 Asylum Street, filed a certificate of incorporation with Secretary of the State of Connecticut, February 7. The company has an authorized capital of \$100,000, and starts business as a corporation with \$30,000 paid in. The following officers are listed: President and treasurer, Hayden R. Lathrop, Hamburg, Conn.; secretary, Frederick L. Jeffers, West Hartford; and Henry M. Sperry. The company will act as a sales agency for the Kelvinator electric refrigerator.

Richardson Returns To South America

D. B. Richardson, representative for the H. M. Robins Company in South America, has been in Detroit for several weeks. He left for Caracas, Venezuela, February 11.

Mr. Richardson has made a record introducing Copeland products into South American markets. On his return he will first call at Caracas, Venezuela, and then go to Brazil and Argentina, later returning to his headquarters at Sao Paulo, Brazil. Copeland refrigerators are popular in South America, according to Mr. Richardson, who has had a wide experience in the export field, having been export manager for automotive companies for many years.

Frigidaire Opens Sales School at Houston, Texas

A school of instruction for Frigidaire salesmen and service employees was held at the Houston, Texas, branch of the Frigidaire corporation, recently, under the auspices of G. H. Bull, factory representative. The school was similar to others being held in factory branches throughout the United States, and proved of great value to the employees who were in attendance. The lectures were made all the more clear by the use of charts, motion pictures and other demonstrations, which left no doubt in the minds of the students.

IMPORTANT ARTICLES ON ELECTRIC REFRIGERATION

Interesting Comments from Other Publications

"What Has Become of Electric Refrigeration—Sizing Up the Industry from a New Angle," by Walter G. Horner. Article is a review of the electric refrigeration industry for the past few years, its rapid growth and its danger of being over-exploited, as in the case of radio industry and others that grew too fast to maintain an absolutely sound financial structure. The article is written for the information of investors.

"Rapid growth in demand for the products of a new industry, instead of being a sinecure, in reality often gives rise to even greater pitfalls, for it not only attracts keener and keener competition and leads to abuses, which must sooner or later be corrected if the industry is to prosper, but it likewise tends to encourage the policy of expansion of output at any cost, even though the sacrifice of a sound financial structure may be entailed. Even a responsible company which is endeavoring to build up a greater tangible equity behind its shares, and is honestly working for stabilization, finds it difficult to cope successfully with a situation of this character, and is bound to suffer to a greater or less extent when the industry encounters a setback.

"If a new industry is fundamentally sound, it will overcome and profit by the lessons learned from its first serious reversal. After that, the excessive enthusiasm which always runs riot in the initial stages, usually subsides to a point to permit a slower but sounder growth by those units in the industry with sufficient strength to survive. This has been the experience of the radio industry, and will undoubtedly be repeated in the case of rayon and electric refrigeration. These industries possessed some advantages over radio in that they were dominated to a greater extent by a relatively smaller number of companies, and from the fact that these lines of endeavor required more capital and higher degree of manufacturing skill. The devastation is likely to be less severe than that which followed the collapse in radio, although profits for the time being are at a low point.

"The encouragement and sales resistance rendered by power companies all over the country is a factor of great weight to the industry, and should be even more so as times goes on. Electric refrigerators require more current than the average household device, and it is naturally to the interests of the central station companies to promote their use as far as possible. They have already provided an outlet for about one-third of the machines sold up to date. Here again, however, it will require time to establish efficient sales and service organizations. There has been insufficient time as yet to build up sales and service forces trained especially for electrical refrigeration, which is really necessary for so specialized a product. To a considerable extent the central station companies have depended on their general staff for this work, and the results on the whole have been the cause of dissatisfaction.

"There is room for improvement in the quality of salesmen and servicemen employed by all classes of dealers. Schools are being conducted by manufacturers, but the tendency has been to shorten the period of training in order that sufficient men may be available to meet the needs created by the great increase in output of refrigerators. Lack of adequate data on service costs and lack of uniformity on the period of free service and dealers' discounts are evils which must be corrected before the industry can become stabilized to a point to permit consistently satisfactory profits. There are many problems connected with servicing, inspection, installation, etc., which will have to be ironed out, and which are difficult to cope with properly in the early stages of mass production."—The Magazine of Wall Street, February 12, 1927.

"Keeping Open Evenings To Sell Refrigerators. Obtaining and working good leads in connection with an attractively arranged electric refrigerator demonstrating room, kept open until 10 o'clock each evening, in a campaign conducted by the New York and Queens Electric Light and Power Company, is selling refrigerators much faster than the company's service department can make the installations. A neatly printed card extending a personal and cordial invitation was sent to visit the store from 9 a. m. to 10 p. m. to 3,000 prospects, and a vacant store was secured and arranged for the demonstrations. Two salesmen and a woman demonstrator are present from nine in the morning until ten o'clock at night.

"These late hours give those engaged in business a chance to inspect the display as well as catching theatre parties and passersby. The demonstrator prepares and serves dainty frozen dishes to the prospects responding to the invitation. As a direct result of this demonstrating room, 23 electric refrigerators were sold and 135 active prospects listed in two weeks.

"This demonstration plan was originally started as an experiment, but it has proven so successful that the company has decided to continue it indefinitely as well as to open up as many other demonstration rooms as obtainable in other parts of the city."—Electrical Merchandising, February, 1927.

"Prospect Scouting by Employees Doubles Refrigeration Sales. Five months' experience of a management company operating in five states, reveals sales possibilities in utilizing—for consumer contact—the entire organization.

"Twelve hundred and ninety-three electric refrigerators in five months—forty per cent of which were sold as the direct result of employee effort. Increase over sales for the same period the preceding year, 480 per cent. Average special commissions cost for prospects sold, \$5.63 per machine. These are some of the outstanding features of a comprehensive campaign for names of live prospects, through all the members of its own organization, concluded this fall by seven properties under the management of Hodenpyl, Hardy and Company, whose general offices are at Jackson, Mich.

"The interesting feature of this electric refrigeration sales endeavor was that the pressure was directed—through its general organization of over 5,000 employees—toward the securing of live-prospect names and that no special inducements to buy were held out to the consumer.

"In the solution of the problem of training and enlisting a large, scattered and diversified force of men and women in a job entirely different from its daily task, rests the success or failure of such a plan. This undertaking was accomplished largely through these mediums:

"The holding of group meetings in each division addressed by a sales executive from headquarters and by the local advertising manager.

"The mailing of 5,700 special bulletins, 'Ice-By-Wire,' twice a month to the home addresses of the available employees.

"The offering of \$10 flat commission for each prospect's name who purchased, and of an extra bonus of \$3 on each sale, if the district made its monthly quota.

"One hundred merchandise prizes—valued at \$3,600—to those turning in the most prospects that resulted in sales.

"The winner of the contest submitted 47 prospects who purchased electric refrigerators. Her commissions, bonus and first prize, a refrigerator, amounted to \$890. This opportunity was taken advantage of by 960 persons.

"So successful was this project that a plan for further employee participation in the selling of appliances is under consideration. This would take advantage of the momentum and enthusiasm already created."—Electrical Merchandising, February, 1927.

ELECTRIC REFRIGERATION PROGRESS IN SEATTLE

Warships and Passenger Liners Equipped With Electric Refrigeration

Frigidaire installation is planned for the new \$300,000 eight-story apartment building, to be started in the University of Washington district, Seattle, Washington, March 1, for Herbert Smith.

The new President Apartment Hotel being completed at Olive Way and Minor Avenue, Seattle, Wash., is featuring the electric refrigeration installation as one of its chief attractions. The new hotel is to be one of the best appointed apartment dwellings in the city.

The new apartments just now completed for the West Building and Leasing Company, Seattle, Wash., are equipped with Kelvinator electric refrigeration.

An inspiration for artistic patterns in hooked rugs is afforded in the offering of a Frigidaire refrigerator as a grand prize in a Seattle, Wash., contest. Competition among the women of the city is keen for this new refrigerator, which will be given for the best rhododendron rug that will follow a Post-Intelligencer pattern, and which is exhibited in the rooms in which lessons are given and classes held.

Among the larger installations of electric refrigeration units undertaken by the Frigidaire Corporation in Seattle, Wash., recently are: Admiral Apartments, Friedlander Courts, The Porter, Somore, The Strand, The Miramar, The Wellesley, The Freed, The Rainer, The MacQuisten, The MacDermott, The Essary, Lancaster, Harvard Court, Cavalier, De Selm, Commodore, Cassell Craig, Sovereign, and apartments for Gardner Gwinn, S. P. Fries, Benjamin Holtry, John S. Hudson, and William A. Bolt.

The United States Navy and other vessels that call at the Seattle docks are proving a lucrative new field for the installation of electric refrigeration. Gerald Frink, of the Frigidaire Corporation of Seattle, has equipped the U.S.S. Idaho and the torpedo boat destroyer, the Stoddard. Mr. Frink states that his company will soon equip one of the larger passenger liners running from Seattle to San Francisco.

An up-to-date warehouse has been established at 1031 Sixth Ave., South, Seattle, by the Frigidaire Corporation of that city, with a quarter million dollar stock of various types of refrigerating and ice cream cabinets. Among the modern facilities at this warehouse is the overhead derrick and crane which enables the products of the company to be readily loaded onto trucks.

Five Important Factors to Consider In Estimating Commercial Applications

Problems of Heat Transfer, Machine Capacity and Air Circulation Are Discussed—Previous Articles Reviewed.

By F. B. Riley, Technical Editor

Member, American Society of Refrigeration Engineers

In preceding papers the two main divisions of small machine refrigeration, and finally the five factors which must be considered in every commercial installation, have been discussed.

Briefly, these five factors are: (1) machine capacity, (2) insulation, (3) low side capacity, (4) air circulation, and (5) the human element in co-ordinating the first four factors.

It might be well to repeat that the selling and estimating of commercial installations should not be left to inexperienced men. The sooner manufacturers and selling organizations realize this, the sooner the commercial division will be "in the black" on the ledger.

It has been pointed out in previous articles that there is no airplane route to commercial estimating. Fundamental understanding of the problems and experience in applying this information, forms the only basis for handling this work.

Under factor No. 2 (insulation) may be grouped the three sources of the refrigerating load, viz.: (1) the heat transferred through the cold storage walls, (2) the product load, and (3) the service load.

Total Heat Transfers

(1) The heat transferred through the walls depends on:

- The size or area of the walls.
- The insulating value of the walls.
- Temperature difference between the inside and outside.

First, determine the total outside area of the cabinet or room to be refrigerated.

Second, determine the insulating value of the wall construction by referring to tables published on insulating values, showing the B. t. u.'s transferred through each square foot of the wall area per degree difference between the inside and outside in 24 hours.

Third, multiply the wall area by the insulating value and the product will be the total heat transferred through the cold storage walls every 24 hours.

Naturally, you should consider, not the easiest load, but the peak of summer weather, and make your calculations accordingly.

The Product Load

In large cold storage rooms there is a definite amount of products going into storage at frequent, or infrequent, intervals. The temperature of these products must be lowered to the determined point of storage temperature.

This load is determined as follows: Multiply the weight of the product by its specific heat (obtained from standard tables of specific heat) and again by the temperature difference between the product entering the room and its final temperature. The result of this calculation is the "product load."

The Service Load

The service load factor is difficult to determine accurately, and in most instances this factor is determined by making an estimate based on previous experience with similar installations.

A certain amount of heat enters a room, or cabinet: (a) when opening doors or windows; (b) by heat given off from persons' bodies while in the room; (c) by burning electric lights in room; (d) through poorly fitting doors or windows, or holes in box.

It is usual to allow 25 per cent of the heat transferred through the walls for this service factor, though it is easy to see that this may vary up to 40 per cent or even more in certain instances. In the smaller commercial installations it will be impossible to make an absolutely accurate estimate, so when in doubt, err on the safe side.

The total refrigerating load may be found by adding together the heat leakage through the walls, the product load, and the service load. This sum will be found in B. t. u.'s and represents a certain fraction or more of a ton of refrigeration as expressed in B. t. u.'s.

Machine Capacity

Having determined the total refrigerating load, as expressed in B. t. u.'s, or in fractions of a ton, or taking the equation further along and expressing it in pounds of refrigeration required per 24 hours in extreme weather, you must now determine how many hours it is advisable to operate a machine to produce this amount of refrigeration.

It is best always to provide a factor of safety in the operating time of the machine. For instance, it is found from experience that from 12 to 15 hours per day operating time satisfies a purchaser better than an installation which operates all the time. A little psychology enters here—a machine which operates all the time gives the purchaser the impression that it must necessarily use a great deal of current and be expensive to operate, whereas a machine which operates but half the time seems economical by comparison. A machine which operates only part of the time to handle the load has a reserve to meet unusual demands of temperature in extreme weather.

You have determined the total refrigeration requirements of the particular job in hand, now look over your tables which state the daily and hourly rating of your

machine in B. t. u.'s and divide the total load by the hours determined on as best for operation, and the result will be the machine capacity required for the work.

Low Side Unit

The operating time will, in general, be the same whether you use a float controlled evaporator, or a direct expansion dry gas evaporator, either of which may or may not be submerged in brine tanks. The necessity for brine tank storage is not so apparent in commercial work with the automatic machines as formerly, when, because of hand or manual operation, it was necessary to provide for long periods, when the machine was shut down for over night, or possibly shut down from Saturday night until Monday morning.

Use the type of evaporator which is recommended by your manufacturer for the particular machine in operation. Regardless of the type of machine used, the work remains the same and must be handled satisfactorily and economically or you have merely acquired a liability instead of an asset in the form of a satisfied customer.

Size of Brine Tank or Evaporator

The heat absorbing unit, whether it be a brine tank, float controlled evaporator, direct expansion coils, etc., must have surface enough to absorb the heat which has been determined as the total refrigerating load in the 12 or 15 hours of operating time. In laying out an evaporator, expansion coil, etc., always be sure that this unit is large enough to handle the work without frosting back excessively.

Rate of Heat Flow

It has been determined by experiment that the rapidity with which heat passes through coils or tank surfaces and is absorbed, depends on whether the medium is a gas, or liquid, on the two sides of the coil or tank surface. We will assume, for the time being, that we are considering a square foot of coil surface.

The rate of heat transfer from gas, or air, outside to gas inside is two B. t. u.'s per hour, per degree difference in temperature.

The rate of flow from a gas to a liquid (flooded coils) is two and one-half B. t. u.'s per hour per degree difference. The rate of flow from a liquid to a gas (brine tank) is 12 B. t. u.'s per hour per degree difference.

The rate of flow from a liquid to a liquid (flooded coils submerged in brine) is 15 B. t. u.'s per hour per degree difference.

It is from these calculations that figures estimating the size or capacity of the low side unit must be based.

It will be advisable to keep accurate records of the various installations, temperatures obtained, etc., so that you may check your estimates by actual performance. The data obtained will be invaluable to you and an efficient aid in checking up any possible service complaints.

Air Circulation

A frequently overlooked factor in the success of any installation is the provision for proper air circulation in the room or cabinet. Inefficient or retarded air circulation may mean a wet or moist box and spoiled foods. An otherwise splendid installation may easily be ruined by faulty air circulation. Do not overlook this most important factor in laying out the low side.

(1) The air ducts should be at least 1 inch in width for each foot in width of box or cabinet.

(2) The cold air duct (down draft) may be up to 50 per cent wider than the up draft but never the reverse.

(3) Place the coils or tanks at least 4 inches above the deck or pan.

(4) Do not extend the coils or brine tanks above the top of warm air duct, or baffle.

(5) The pan, or deck, should pitch one-half inch per foot from warm air duct to the cold air down duct.

(6) Always place coils or tanks parallel with baffles or ducts.

These few suggestions are essential and may not be disregarded without risk of trouble afterward. They are the essence of good practice, which naturally follows with experience in this class of work.

Baffles and decks should be insulated, if proper circulation is to be expected. The baffles should have an equivalent of one inch of cork insulation and the deck should have an equivalent of two inches. Any part of the box where circulation is retarded, or which becomes unusually cold (uninsulated deck) will gather moisture or sweat, as it is usually termed.

The Human Element in the Installation

This phase of the work was discussed briefly in a previous article. Your sales engineer may have laid out a perfect job, his calculations may all have been perfect, yet the installation may be unsatisfactory because the workmanship is poor, or careless—pipes are not put up square and plumb with the masonry or woodwork—it may look like an amateur job. The erecting engineer may display poor judgment in his conversation with the purchaser—he may criticize the management, or the equipment and leave a distinctly bad impression in the mind of the purchaser, which may require tact to overcome.

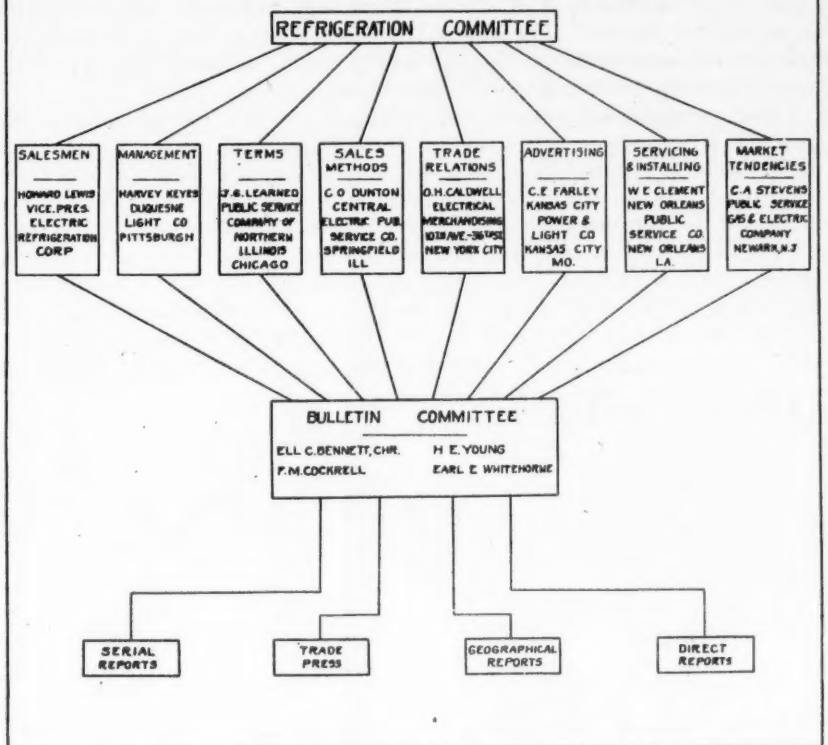
The erecting engineer should be carefully trained in his work and should know some of the essentials of good salesmanship. He is your representative and the purchaser will judge you by the type of man who represents you in this most important part of the work. See that the erectors get their training under competent men before permitting them to represent you in the field, and check on the work at frequent intervals to weed out the incompetents and knockers.

This article and the preceding ones are merely a brief resume of some of the essentials of commercial refrigeration. I have tried to put across, more particularly to the executives, the thought that the commercial division cannot succeed as a haphazard scramble to get business, regardless of the possibilities of any particular equipment to handle the work. Success will come from a well organized drive to secure business, and when directed by men who have had experience in this particular division of the work.

N. E. L. A. Committee Organization Chart

NATIONAL ELECTRIC LIGHT ASSOCIATION
COMMERCIAL SECTION

REFRIGERATION COMMITTEE ORGANIZATION



Note: The next meeting of the Electric Refrigeration Committee will be held at the Edgewater Beach Hotel, Chicago, March 9-11.

QUALITY TRIM DENOTES QUALITY THROUGHOUT



Monel Metal helps Leonard "Cleanable" live up to its name

Leonard adopted Monel Metal trim because it provides these six outstanding superiorities:

1. It has a permanently bright attractive surface—it dresses up the refrigerator.
2. Its corrosion-resistance makes it easy to clean and keep clean.
3. It is inherently rugged—hard to dent or scratch.
4. It has no coating to wear off.
5. Its permanent ornamental value helps sell the refrigerator.
6. Last, but not least: It is available in ample quantities in desired dimensions, shapes and forms.

IMPORTANT: Refrigerator buyers are being taught to recognize a quality refrigerator by its Monel Metal trim.

Monel metal

THE INTERNATIONAL NICKEL COMPANY (INC.), 67 WALL STREET, NEW YORK CITY

Electric Refrigeration Patents

A Classified Record of All Electric Refrigeration Patents Issued Up to January 1, 1927

Compiled by H. R. Van Deventer, Patent Attorney, New York City

The United States Patent Office classifies all issued patents according to the subject matter thereof, and in accordance with an Official Classification of subject matter. Therefore, the patents pertaining to the subject of refrigeration are contained in one major class, entitled "Refrigeration," which is in turn divided into 178 sub-classes.

These sub-classes include in addition to the iceless refrigeration machines and processes, other sub-classes pertaining to ice refrigerator boxes and ice buildings, cars, ships, and wagons, and also systems of air cooling such as are used in theaters and public buildings. There is also included sub-classes on automatic control of the iceless machines.

Following is the first installment of the complete list of all patents contained in the Official Sub-classes on iceless refrigeration machines and automatic control. The definitions appearing at the head of each sub-class are those officially given thereto by the United States Patent Office.

CLASS 62---REFRIGERATION

Sub Class 1. Miscellaneous

Refrigerating means not otherwise classifiable.

64,283, W. B. Coates.....	Apr. 30, 1867
69,955, D. E. Somes.....	Oct. 15, 1867
112,294, D. E. Somes.....	Feb. 28, 1871
117,013, Samuel Stroock.....	July 11, 1871
160,077, A. Brandt.....	Feb. 23, 1875
163,376, W. N. Hill.....	May 18, 1875
205,968, E. W. Leggett.....	July 16, 1878
220,419, T. L. Rankin.....	Oct. 7, 1879
250,256, J. F. Withey.....	June 8, 1882
262,422, J. H. Irwin.....	Aug. 8, 1882
283,165, H. B. Taddicken.....	Aug. 14, 1883
288,333, T. Hayes.....	Nov. 13, 1883
420,641, M. W. Dewey.....	Feb. 4, 1890
431,502, E. Armstrong.....	July 1, 1890
434,995, A. J. Robertson.....	Aug. 26, 1890
469,874, H. H. Snow.....	Mar. 1, 1892
475,728, P. Giffard.....	May 24, 1892
484,182, M. W. Dewey.....	Oct. 11, 1892
485,217, C. H. Parshall.....	Nov. 1, 1892
489,729, D. Branson, R. D. Thornburgh & J. E. Stapp.....	Jan. 10, 1893
490,902, R. H. Galbreath.....	Jan. 11, 1893
505,175, C. F. McGlashan.....	Aug. 4, 1896
572,762, D. J. Landers.....	Dec. 8, 1896
605,187, E. A. Rix.....	June 7, 1898
642,346, J. Madden.....	Jan. 30, 1900
652,759, S. H. Emmens.....	July 3, 1900
653,823, P. W. Skinner.....	July 17, 1900
662,541, J. Miskolczy.....	Nov. 27, 1900
664,776, E. H. Sorenson.....	Dec. 25, 1900
666,829, W. Venier.....	Jan. 29, 1901
671,398, J. Miskolczy.....	Apr. 2, 1901
671,399, J. Miskolczy.....	Apr. 2, 1901
673,561, G. A. Manwaring.....	May 7, 1901
683,010, G. A. Bobrick.....	Sept. 17, 1901
686,619, K. S. Lemstrom.....	Nov. 12, 1901
696,162, J. Cullen.....	Mar. 25, 1902
724,950, H. B. Rowland.....	Apr. 7, 1903
740,847, A. Glebsattel.....	Oct. 6, 1903
753,843, W. C. Betts.....	Mar. 8, 1904
811,596, V. Thansing.....	Feb. 6, 1906
874,986, C. A. Parsons.....	Dec. 31, 1907
901,692, W. Curf & E. Wheelock.....	Oct. 20, 1908
938,931, C. A. Kelsey.....	Oct. 10, 1910
967,024, M. Leblanc.....	Aug. 9, 1910
996,033, H. C. Steffy.....	June 20, 1911
1,007,060, B. Brazelle.....	Oct. 31, 1911
1,012,837, N. E. Frost.....	Dec. 26, 1911
1,017,723, S. M. Woodbridge.....	Feb. 20, 1912
1,033,751, G. E. Whitney.....	July 23, 1912
1,048,063, W. A. Gaynor.....	Dec. 24, 1912
1,068,871, Egner & Holmstrom.....	July 29, 1913
1,080,528, G. Appiani.....	Dec. 9, 1913
1,083,945, K. C. Randall.....	Jan. 13, 1914
1,182,460, E. B. Cruzer.....	May 9, 1916
1,251,370, L. M. Hendler.....	Dec. 25, 1917
1,314,773, M. Von Recklenhausen.....	Sept. 2, 1919
1,369,812, G. L. Hooper.....	Mar. 1, 1921
1,375,396, E. G. Langford.....	Apr. 19, 1921
1,380,987, J. W. Lippincott.....	June 7, 1921
1,388,297, P. W. Petersen.....	Aug. 23, 1921
1,388,297, P. W. Petersen.....	Aug. 23, 1921
1,414,359, P. Heylandt.....	May 2, 1922
1,420,220, E. V. Roux.....	June 20, 1922
1,447,487, E. Schaller.....	Mar. 3, 1923
1,463,851, R. H. Smith.....	Aug. 7, 1923
1,478,479, W. Lachmann.....	Dec. 25, 1923
1,521,385, A. Messer.....	Dec. 30, 1924
1,521,712, H. D. Pownall.....	Jan. 6, 1925
1,528,891, P. W. Petersen.....	Mar. 10, 1925
1,532,982, A. Blom.....	Apr. 7, 1925
1,570,163, F. H. Mattingly.....	Jan. 10, 1926
1,589,079, J. E. Johnson.....	June 15, 1926
1,593,175, J. A. Joeris.....	July 20, 1926

Sub Class 2. Automatic Control

Refrigerating apparatus having means for regulating temperature, etc., independent of manual control.

660,771, O. Guthrie.....	Oct. 30, 1900
920,677, J. C. Smith.....	May 4, 1909
924,964, G. P. Carroll.....	June 15, 1909
932,711, C. Knight & W. O. Lum.....	Aug. 31, 1909
985,147, A. C. Culver.....	Feb. 28, 1911
1,061,765, E. J. Markel.....	May 13, 1913
1,384,477, F. E. Matthews.....	July 12, 1921
1,389,688, R. E. Ottenheimer.....	Sept. 6, 1921
1,427,112, A. W. Lissner.....	Aug. 29, 1922
1,428,361, W. J. May.....	Aug. 29, 1922
1,463,489, L. B. Shanton.....	July 3, 1923
1,560,196, C. L. Bastian.....	Nov. 3, 1925
1,566,290, L. B. Swift.....	Dec. 22, 1925

Sub Class 3. Automatic Control, Compressor-Control Condenser-Expander Circuit

Automatic control apparatus in which a gas passes through a compressor into a condenser and then into an expander, such as an expansion coil, where the condensed gas absorbs heat and passes again into the compressor.

4,992, Martin & Beath.....	July 16, 1872
127,180, Martin & Beath.....	May 28, 1872
222,433, Young & Nelson.....	Dec. 9, 1879
240,697, J. F. Gesner.....	Apr. 26, 1881
268,347, Wood & Richmond.....	Dec. 28, 1882
441,995, W. W. Wheeler.....	Dec. 2, 1890
442,026, W. E. Facer.....	Dec. 2, 1890
452,536, E. T. Winkler.....	May 19, 1891
487,706, L. Block.....	Dec. 13, 1892
504,092, P. I. Schmalz.....	Aug. 29, 1893
518,541, L. Block.....	Apr. 17, 1894
537,623, E. T. Winkler.....	Apr. 16, 1895
549,426, A. T. Ballantine.....	Nov. 5, 1895
602,199, J. Sedlacek.....	Apr. 12, 1899
623,270, L. Block.....	Apr. 18, 1899
630,617, A. T. Marshall.....	Aug. 8, 1899
716,480, R. W. Rollins.....	Dec. 23, 1902
795,014, R. Whitaker.....	July 18, 1905
816,810, C. E. Molesworth.....	Apr. 3, 1906
833,325, W. C. Hiestar.....	Oct. 16, 1906
920,392, F. A. Alder.....	May 4, 1909
929,151, R. F. Massa.....	July 27, 1909
932,599, R. Whitaker.....	Aug. 31, 1909
936,065, R. Whitaker.....	Oct. 5, 1909
959,458, G. P. Carroll.....	May 31, 1910
971,162, E. T. Winkler.....	Sept. 27, 1910

Sub Class 4. Automatic Control, Compressor-Condenser-Expander Circuit, Motor Control

Automatic control compressor-condenser-expander circuits in which the motor for operating the compressor is controlled according to conditions of temperature or pressure in the circuit or in the chamber to be cooled.

559,753, Sharpneck & Knox.....	May 5, 1896
577,328, W. F. Singer.....	Feb. 16, 1897
630,616, A. T. Marshall.....	Aug. 8, 1899
670,915, C. W. Coleman.....	Mar. 26, 1901
684,894, S. C. Wolcott.....	Oct. 22, 1901
686,874, S. C. Wolcott.....	Nov. 19, 1901
697,929, W. F. Singer.....	Apr. 8, 1902
709,814, C. J. Coleman.....	Sept. 23, 1902
726,217, C. J. Coleman.....	Apr. 21, 1903
726,218, C. J. Coleman.....	Apr. 21, 1903
794,462, G. A. Masters.....	July 11, 1905
795,015, R. Whitaker.....	July 18, 1905
805,648, S. L. G. Knox.....	Nov. 28, 1905
806,478, C. Marshall.....	Dec. 5, 1905
834,970, Chamberlain & Marshall.....	Oct. 30, 1906
911,635, R. Whitaker.....	Feb. 9, 1909
912,866, R. F. Massa.....	Feb. 16, 1909
929,151, R. F. Massa.....	July 27, 1909
942,455, J. Heinrich.....	Dec. 7, 1909
942,499, J. Heinrich.....	Dec. 7, 1909
946,771, E. Carpenter.....	Jan. 18, 1910
949,535, E. E. Trapp.....	Feb. 15, 1910
985,563, E. T. Winkler.....	Feb. 28, 1911
1,001,664, A. T. Marshall.....	Aug. 29, 1911
1,003,283, A. T. Marshall.....	Sept. 12, 1911
1,046,588, C. H. Hapgood.....	Dec. 10, 1912
1,050,894, Williams & Bernhard.....	Jan. 21, 1913
1,050,910, F. Bishop.....	Jan. 21, 1913
1,068,623, W. I. Bodine.....	July 29, 1913
1,112,672, A. L. Brown.....	Oct. 6, 1914
1,117,786, C. A. V. Carlsson.....	Nov. 17, 1914
1,118,377, G. P. Carroll.....	Nov. 24, 1914
1,148,464, G. J. Sayer.....	July 27, 1915
Re. 14,415, J. F. Winkler.....	Dec. 18, 1917
1,164,438, J. F. Winkler.....	Dec. 18, 1917
1,225,850, J. M. Peterson.....	May 15, 1917
1,233,755, E. P. Connelly.....	July 17, 1917
1,250,062, C. W. Hennhold.....	Dec. 11, 1917
1,259,014, C. C. Hansen.....	Mar. 12, 1918
1,270,928, J. H. Coefeld.....	July 2, 1918
1,273,577, G. P. Carroll.....	July 23, 1918
1,273,578, G. P. Carroll.....	July 23, 1918
1,302,596, Schweinle & Hauerwas.....	May 5, 1919
1,325,756, C. Schweinle.....	Dec. 23, 1919
1,329,350, Heidman & Hadjisky.....	Jan. 27, 1920
1,330,866, C. C. Hansen.....	Feb. 17, 1920
1,340,646, C. A. Anderson.....	May 18, 1920
1,402,418, C. C. Hansen.....	Jan. 3, 1922
1,403,219, W. Wishart & A. H. Morrell.....	Jan. 10, 1922
1,418,488, E. B. Spalt & F. R. McGinnis.....	June 6, 1922
1,418,806, F. H. Kolbe.....	June 6, 1922
1,424,826, A. D. Karr & K. D. Perkins.....	Aug. 8, 1922
1,425,265, A. T. Marshall.....	Aug. 8, 1922
1,425,266, A. T. Marshall.....	Aug. 8, 1922
1,425,267, A. T. Marshall.....	Aug. 8, 1922
1,430,263, E. R. Sage.....	Sept. 26, 1922
1,436,445, O. Homer.....	Nov. 21, 1922
1,443,592, W. Richmond, et al.....	Jan. 30, 1923
1,445,751, G. P. Carroll.....	Feb. 20, 1923
1,445,752, G. P. Carroll.....	Feb. 20, 1923
1,445,753, G. P. Carroll.....	Feb. 20, 1923
1,457,950, A. L. Uberto.....	June 5, 1923
1,464,277, H. Guyer, et al.....	Aug. 7, 1923
1,471,098, P. H. Buch, et al.....	Oct. 16, 1923
1,474,851, R. Ruegger.....	Nov. 20, 1923
1,476,546, J. R. Replote, et al.....	Dec. 4, 1923
1,478,421, R. E. Bechtold, et al.....	Dec. 25, 1923
1,482,738, A. A. Burford, Jr.....	Aug. 5, 1924
1,486,551, C. G. Smith.....	Mar. 11, 1924
1,494,858, J. A. Mercer, et al.....	May 20, 1924
1,496,676, P. M. Jauvert.....	June 3, 1924
1,498,307, R. E. Shultz.....	June 17, 1924
1,501,874, F. A. Wardenburg.....	July 15, 1924
1,508,132, C. S. Spreen.....	Sept. 30, 1924
1,510,164, E. Ruegger.....	Oct. 14, 1924
1,511,406, J. Frankenberg.....	Oct. 21, 1924
1,512,133, T. I. Potter.....	Oct. 21, 1924
1,520,936, J. H. Kennedy.....	Dec. 30, 1924
1,523,112, J. W. Fitzgerald.....	Jan. 13, 1925
1,529,014, J. H. Kennedy.....	Mar. 10, 1925
1,532,214, W. Wishart, et al.....	Apr. 7, 1925
1,538,486, F. J. Humphrey, et al.....	May 19, 1925
1,542,479, C. Schweinle.....	June 16, 1925
1,552,239, B. C. Shipman.....	Sept. 1, 1925
1,557,192, E. J. Brunning.....	Oct. 13, 1925
1,560,807, H. J. Smith.....	Nov. 10, 1925
1,570,144, F. J. Heidman.....	Jan. 19, 1926
1,570,416, H. S. Vassar.....	Jan. 19, 1926
1,572,467, L. G. Burgess, et al.....	Feb. 9, 1926
1,575,817, W. H. Carrier.....	Mar. 9, 1926
1,584,243, K. D. Perkins.....	May 11, 1926
1,584,870, J. K. Lagerer.....	May 18, 1926
1,586,798, C. C. Hanson.....	June 1, 1926
1,592,888, H. B. Howell.....	July 20, 1926
1,592,891, C. L. McCuen.....	July 20, 1926
1,590,330, M. S. Groh.....	Sept. 21, 1926
1,601,477, R. U. Kritzer.....	Sept. 28, 1926

Sub Class 5. Automatic Control, Still Circuit

Automatic control apparatus comprising a still (heated vaporizer) for generating a gas, means for cooling the gas, an expander for the cooled gas, and means for finally returning the gas to the still, either with or without a separate absorber.

257,476, F. & C. E. Davis.....	May 9, 1882
439,181, L. Perkins.....	Oct. 28, 1890
441,544, Erny, Subers & Hoos.....	Nov. 25, 1890
446,252, Erny, Subers & Hoos.....	Feb. 10, 1891
489,335, A. Siebert.....	Jan. 3, 1893
535,761, E. W. Howell.....	Mar. 12, 1895

651,826, C. J. Coleman.....	June 19, 1900
677,845, C. J. Coleman.....	July 2, 1901
738,107, W. W. Harris.....	Sept. 1, 1903
746,792, C. J. Coleman.....	Dec. 15, 1903
757,392, C. J. Coleman.....	Apr. 12, 1904
757,393, C. J. Coleman.....	Apr. 12, 1904
871,325, C. J. Coleman.....	Nov. 19, 1907
943,040, C. McKee.....	Dec. 14, 1909
959,458, T. P. Carroll.....	May 31, 1910
978,557, G. P. Carroll.....	Dec. 13, 1910
1,014,120, C. J. Coleman.....	Jan. 9, 1912
1,034,657, H. H. Southworth & F. W. Wolf, Jr.....	Aug. 6, 1912
1,046,134, F. W. Wolf, Jr. & H. H. Southworth.....	Dec. 3, 1912
1,046,135, F. W. Wolf, Jr. & H. H. Southworth.....	Dec. 3, 1912
1,054,507, C. J. Coleman.....	Feb. 25, 1913
1,068,617, F. W. Wolf, Jr. & H. H. Southworth.....	July 29, 1913
1,068,618, F. W. Wolf, Jr. & H. H. Southworth.....	July 29, 1913
1,070,074, Southworth & Wolf.....	Oct. 12, 1913
1,076,537, Wolf & Southworth.....	Oct. 21, 1913
1,079,448, Southworth & Wolf.....	Nov. 25, 1913
1,092,426, A. E. Bosse.....	Apr. 7, 1914
1,096,824, G. P. Carroll & F. N. Koehrich.....	May 19, 1914
1,102,998, C. J. Coleman.....	July 7, 1914
1,102,999, C. J. Coleman.....	July 7, 1914
1,109,021, H. H. Southworth & C. G. Armstrong.....	Sept. 1, 1914
1,159,400, H. H. Southworth & F. W. Wolf.....	May 11, 1915
1,139,461, H. H. Southworth.....	May 11, 1915
1,151,025, C. C. Norton.....	Aug. 24, 1915
1,151,026, C. E. Loetscher.....	Aug. 24, 1915
1,153,712, E. Ruud.....	Sept. 14, 1915
1,162,313, H. H. Southworth.....	Nov. 30, 1915
1,162,316, H. H. Southworth.....	Nov. 30, 1915
1,162,318, H. H. Southworth.....	Nov. 30, 1915
1,162,348, G. A. Gase.....	Nov. 30, 1915
1,174,634, H. H. Southworth.....	Mar. 7, 1916
1,188,197, G. A. Gane.....	Jan. 27, 1916
1,190,225, M. F. Ewen.....	July 4, 1916
1,198,352, E. W. Howell.....	Sept. 12, 1916
1,217,084, G. P. Carroll.....	Feb. 20, 1917
1,219,533, G. P. Carroll.....	Mar. 20, 1917
1,219,534, G. P. Carroll.....	Mar. 20, 1917
1,223,813, J. C. Loetscher.....	May 12, 1917
1,225,408, G. P. Carroll.....	May 12, 1917
1,242,559, F. G. Keyes.....	Oct. 9, 1917
1,245,544, H. E. White.....	Nov. 6, 1917
1,246,866, A. W. Browne & R. P. Nichols.....	Nov. 20, 1917
1,255,286, O. E. Bornhauser & J. E. Herman.....	Feb. 5, 1918
1,255,505, O. E. Bornhauser & J. E. Herman.....	Feb. 5, 1918
1,259,006, M. F. Ewen & A. L. S. McCurdy.....	Mar. 12, 1918
1,260,427, J. L. Merrill.....	Mar. 26, 1918
1,267,319, C. L. Fortier.....	May 21, 1918
1,273,364, E. S. Halsey.....	Jul. 23, 1918
1,324,610, W. E. & E. G. Mild.....	Dec. 9, 1919
1,390,161, W. C. Raddant.....	Sept. 6, 1921
1,404,457, F. E. Matthews.....	Jan. 24, 1922
1,414,527, R. E. Schurtz.....	May 2, 1922
1,415,244, J. Zander.....	May 9, 1922
1,427,370, C. W. Hapgood.....	Aug.

See Electric Refrigeration as Enormous Potential Market for Sheet Steel

Production and Marketing Facilities of Electric Refrigeration Industry Have Developed More Rapidly Than Did the Automotive Industry

The following article entitled "A Hint On Electrical Refrigeration as a Market," appears in the current issue of "Making Markets," a business development publication issued by the Sheet Steel Trades Extension Committee, 715 Oliver Bldg., Pittsburgh, Pa.

There is no doubt about it, electrical refrigeration is one of the big trends into which the public is headed right this moment; and it is safe to predict that the next decade will see wide adoption of mechanical refrigeration. Electrical refrigeration has everything to commend it. It is clean, it is constant, and it is controllable. And now that extensive plans are being made by responsible manufacturers to put electrical refrigeration at the disposal of the public at very moderate cost, there is every reason to expect that it will sweep into general use almost at once.

From the standpoint of sheet steel, refrigeration holds a two-fold opportunity: (1) Sheet steel is, from a structural standpoint, the logical material for the making of much refrigeration equipment, being mechanically expedient, strong, durable, sanitary and susceptible to various permanent finishes; and (2) it is gaining greater and greater public demand so that refrigerators and cabinets built of it inherit that definite sales advantage. These things will be, in fact, recognized by builders of electrical refrigeration equipment for any class of service.

Under the caption "Electric Ice," the January issue of "THE INDEX," a magazine published by the New York Trust Company of New York, the following resumé of the development in electrical refrigeration is given:

"More electric refrigerators were sold during the first seven months of 1926 than the total number in use at the beginning of the year. Total sales during this period consisted of 165,287 domestic and 27,279 commercial units, or 192,566 units in all; compared with a total of 146,480 units in use January 1, 1926.

"The principle of electric refrigeration, however, was discovered many years ago by Lord Kelvin, the English physicist. Little progress in manufacturing and marketing electric refrigerating units was made, principally because production was not based upon a scale to permit an equitable selling price. Furthermore, although the basic principle of electrical refrigeration had been solved, scientists had not perfected the other parts of the unit in such a manner that it could be easily and successfully operated by the individual owner.

Developed Like Automotive Industry

"The expenditure of large sums of money during the past few years developed the experiment into an industry. In its scheme of production, distribution and service, the manufacture of the iceless refrigerator has followed the principles laid down in automobile production.

"As in the early stages of the automobile, the first necessity was the production of these refrigerating machines in such quantities as to reduce costs and prices. Of the two most successful companies making these units, one is a subsidiary of a large motor corporation, and the other a consolidation of three of the largest refrigerator manufacturers.

"Secondly, the manufacturers have found that the method of distribution must be

similar to the system used for automobiles. The largest company in this country has had the advantage of using the distribution offices of one of its subsidiaries engaged in the manufacture of automobile accessories; while the second company, which is, incidentally the oldest, has through many years of patient endeavor, built up a distribution force of more than 5,000 dealers.

"Service has, of course, been one of the major problems confronting the refrigerator manufacturers. The automobile industry early in its career found that its most difficult problem was teaching purchasers how to operate automobiles and in providing service stations where repairs and new parts could be obtained. Practically 20 years was consumed by the automobile industry in perfecting its service system. The electric refrigeration industry, on the other hand, has perfected its service system in about five years, so that now a purchaser can receive instruction and repairs for his electric refrigerator almost as easily as he can for his automobile.

Production on Large Scale

"With its major problems well in hand, the industry is now turning to the task of expanding its sales. They are starting with large operating units instead of building up the plants over a period of years. The benefits of large-scale production will be enjoyed at the beginning.

"An advertising campaign said to involve an expenditure of \$10,000,000, has been planned. This campaign will have the support of electric power companies in practically every city in the United States, since sales of electric refrigerators mean an increase in electric power consumption.

"Units are made in various sizes to fit every need of the home. This, of course, will make up a major portion of the sales of electric refrigeration units. So far as the commercial units are concerned, the field is much wider and more varied, although the number of units is not so large. Commercial units today include cabinets for storing ice cream, milk, food products, cold drinks, and many other items of a perishable nature. Experiments are now being carried on for the extension of the refrigerating idea for cooling office buildings and homes. In England many of the express passenger trains are fitted with electric refrigerators.

"The industry is only in its infancy. It has been estimated that there are potentially 14,532,930 customers for domestic refrigerators and 2,781,890 for commercial units. Thus the saturation point for domestic customers at present is only 1.78 per cent, and for commercial customers 2.88 per cent."

That is the picture in brief. It is the picture of a tremendous potential market, a market so vast as to be almost incomprehensible. Just how a big part sheet steel will play in the ultimate serving of that market is very largely dependent upon the vision and ingenuity of those who make, those who sell, and those who fabricate sheet steel.

Sales Executive

The writer, who is not in accord with the present methods of merchandising, has just resigned as Sales Manager of one of the largest manufacturers of Electrical Refrigeration, and would like to form a connection with a company who are progressive and who have vision enough to see the "Hand-writing on the Wall."

I have a successful record and a large distributor and dealer following throughout the United States. Address Box 16, care Electric Refrigeration News.

Might consider handling Sales Department for a progressive, well financed distributor.

Robins Goes To Europe for Copeland

H. M. Robins, director of foreign sales for Copeland Products Incorporated, sailed on February 19 from New York for Europe. He will visit the British Isles, the Scandinavian countries, Germany, France and Spain. The purpose of his trip is to make a survey of European markets for outlets for Copeland products. He will return May 1. For many years Mr. Robins was export manager for leading automotive companies.

Favors First Class Delivery

The announcement in the February 2 issue of how to obtain ELECTRIC REFRIGERATION NEWS by first class mail has met with favor by many subscribers, and one of them, L. H. Holman, of the Kelvinator, Inc., Boston, even suggests that we further speed delivery by using air mail.

Mr. Holman states that the idea of first class mail delivery is an exceptionally good one, although he says: "Personally I would like to have your most interesting publication come forward by airplane mail. It is indeed very interesting and helpful. The article on 'Electric Refrigeration for Dining Cars,' was particularly valuable."

5 out of 6 of the leaders of the industry use coils of Wolverine Seamless copper tubing.

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WOLVERINE TUBE COMPANY
1431 Central Ave., Detroit, Mich.

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SEAMLESS COPPER AND BRASS TUBING

Time-Tested

For 37 years McCray, building upon basis patents, has held to an unyielding standard of quality. Things you never see—a hundred vital details hidden from the eye—insure efficient, economical, enduring service. All McCray models are ready for use with electrical or mechanical refrigeration of any type.

Correspondence invited
from interested dealers.

McCray Refrigerator Sales Corporation
DEPT. 66, KENDALLVILLE, IND.

Salesrooms in All Principal Cities — See Telephone Directory

MCCRAY
REFRIGERATORS
— for all purposes —

New Crysteel All-Porcelain Cabinets hailed as great aid to Electric Refrigeration Distributors and Dealers

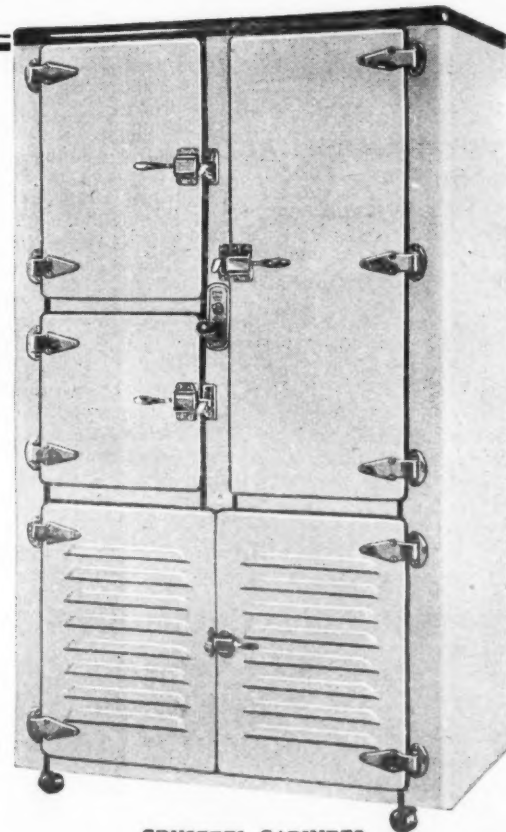
REALIZING that many a good unit is condemned because of a poor box, Benjamin Engineers set about to build a CABINET that would give the mechanical unit every opportunity to deliver its highest efficiency.

Now the Crysteel Line of All-Porcelain Cabinets offer Electric Refrigeration dealers these advantages:

1. Scientific insulation permits Crysteel Cabinets to hold cold longer. This cuts operating cost of unit and promotes satisfaction among users.
2. Beauty of design appeals to pride of ownership.
3. Manufactured complete in Benjamin Crysteel Works—the largest specialty enameling plant in the world. Enormous facilities assure uniform quality and color.
4. Produced by a concern with a record of 25 years reputable business dealings and ample financial responsibility.
5. Merchandised by a new plan embracing an exclusive franchise, local advertising over dealer's own name financed by the factory.
6. Benjamin manufactures Cabinets only—no mechanical units.

Open territory is available to alert dealers who can meet the requirements of the Benjamin Crysteel Organization. Write for details.

Benjamin Electric Manufacturing Company
120 S. Sangamon St. Chicago



CRYTEEL CABINETS
are built expressly for electric refrigeration
—and accommodates any standard unit

Crysteel

ALL PORCELAIN
FUSED ON



BUILT BY BENJAMIN

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Electric Refrigeration Industry

Brine Tanks

Liquid Receivers
Forged Fittings
Perforated Sheet Metal

Air Cooled Condensers

Low Temperature Oils
Motor Pulley Fans
Forged Valves
Automatic Controls

Metal Refrigerator Cabinets

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F. B. RILEY

320 Beaubien St.

Detroit, Mich.

UNIVERSAL COOLER DIRECTOR OF SALES



A. H. MEINKE

Besides filling the positions of vice-president and director of sales of the Universal Cooler Corporation, Detroit, Mr. Meinke finds time to serve as secretary and treasurer.

Apartment Plans Specify a Unit Refrigerating System

J. L. Boucher, 500 Belmont street, Springfield, Mass., is preparing plans for the construction of two large, modern apartment houses. Specifications for the installation of unit refrigeration systems are included. About 50 families will be accommodated.

Delivery Trucks Equipped With Electric Refrigeration

The Purity Ice Cream Company of Seattle has had its delivery truck electrically refrigerated, by the Frigidaire Corporation of that city, recently, to improve its delivery service. Another organization in this section, which has likewise been equipped, is the Whatcom County Dairy Association at Bellingham, Wash., whose delivery trucks have been equipped with the Frigidaire units.

N. E. M. A. Appointment

S. N. Clarkson has been appointed assistant to the managing director of the newly formed National Electrical Manufacturers' Association, 30 East Forty-second Street, New York. Mr. Clarkson was formerly executive secretary of the Electric Power Club, which has been merged with the new organization.

WHAT OUR READERS ARE SAYING

"You are to be congratulated on the wonderful work that you are doing for Electric Refrigeration, and I look forward to the coming issue of the ELECTRIC REFRIGERATION NEWS."—T. J. Ziegler, North and South Carolina Service Supervisor, Servel Corp., Camden, S. C.

"I have found the copies that I have received so valuable to me as a salesman of electric refrigeration, that I have started a scrap-book of the items of especial interest, cutting up the issues for this purpose as they arrive. I also hand our local papers items of general interest in your paper."—A. T. Southard, Kelvinator Sales Corporation, Peekskill, N. Y.

Subscription Blank

Note: This offer expires April 1, 1927

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409 EAST JEFFERSON AVENUE
DETROIT, MICH.

Gentlemen:

Please enroll me as a subscriber to ELECTRIC REFRIGERATION NEWS, the Business Newspaper of the Electric Refrigeration Industry, at the rate specified below.

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☐ NOTE: If it is inconvenient for you to enclose payment with this order, check this square and invoice will be mailed. Do it now, while you have the blank before you. It will save the time and trouble of writing a letter and you will be sure to get the next issue.

THEY WANT TO KNOW

Note: Readers desiring to furnish information on these subjects are invited to address Electric Refrigeration News.

Wants to Know About Compressed Air Refrigeration

An architect in Pennsylvania writes as follows: "Can you advise me how I may obtain a list of the electric refrigerator manufacturers, with those systems marked which utilize compressed air? Also can you advise of an electrical engineer with whom I might consult in regard to compressed air refrigeration?" (Please mark reply Q-16).

Wants to Locate a Developed Machine for Manufacturer

A Massachusetts reader writes: "As a subscriber to your very excellent publication, Electric Refrigeration News, I am taking the liberty of asking you for help. A successful manufacturer has some idle factory space, laboratory and a desire to place a small refrigerating unit on the market. He has asked me to find him a machine, preferably one that has already been developed but needs the facilities for placing it into production. Can you give the names of any persons whom I can get in touch with which would lead to finding a suitable machine waiting to be taken in hand?" (Please mark reply Q-17).

Wants Data on Use of Sheet Steel for Cabinets

The editor of Electric Refrigeration News would like to know of any available information or data on the results of tests or experiments which have been made to show the comparative value of sheet steel versus other metals or other construction for electric refrigerator cabinets, also information regarding the best methods of using sheet steel for this purpose. (Please mark reply Q-18).

Wants Competent Engineer to Test Cabinets

A manufacturer inquires as follows: "We are building cabinets for mechanical refrigeration. We would like very much to have these boxes thoroughly tested by some competent engineer or organization. We want this test made by either an engineer or organization which is nationally known so that it will convey the desired effect when we tell our customers that our boxes have been tested by such and such a party or organization. We believe that you are in a position to recommend to us the best engineers or organizations that could give us this test. Your cooperation in this respect will be very much appreciated." (Please mark reply Q-19).

Wants to Know How Many Electric Refrigerators Have Been Sold to Date

The general sales manager of a central station asks: "I will be very glad if you can furnish us with the number of electric refrigerators which have been manufactured and sold up to date. We do not want to put you to any bother to get this information, but we presume you have it available." (Reference to various estimates ranging from 200,000 to 350,000 have been made in various articles published. If anyone has discovered a basis for making an accurate determination, we will be glad to have this information. Please mark reply Q-20.)

Wants Record Form for Service, Installation and Complaints

A large central station makes the following request: "We would thank you for subjects on an up-to-the-minute form for refrigerator service calls, installations and complaints. We are at this time, going to considerable expense to organize an A-1 service department and if your form could cover electric refrigerators and other appliances, so much the better. (Please mark reply Q-21.)

CHAIRMAN OF EDISON COMPANIES COMMITTEE



C. K. NICHOLS

The electric refrigeration committee of the association of Edison Illuminating Companies met in Detroit, February 17, to study the present status of electric refrigeration and to consider any desirable action in connection with the present tendencies in the development of small machines for domestic use. The membership of the committee is as follows:

A. D. McLay, Sales Engineer, Detroit Edison Company, Detroit, Mich.

R. R. Young, Vice-President, Public Service Gas & Electric Co., Newark, N. J.

E. W. Lloyd, Vice-President, Commonwealth Edison Company, Chicago, Ill.

R. H. Tillman, new Business Manager, Consolidated Electric Light and Power Co., Baltimore, Md.

H. E. Young, Sales Manager and Chairman of the Refrigeration Committee of the N. E. L. A. Northern States Power Company, Minneapolis, Minn.

H. M. Camp, Lighting Sales Manager, Tennessee Electric Power Co., Chattanooga, Tenn.

C. K. Nichols, New York Edison Company, New York City, Chairman.

Frigidaire Preserves Food Though House Burns

Grant Fink, Seattle manager of Frigidaire Corporation, in citing the fire resisting qualities of electric refrigerators, calls attention to a recent fire in a residence which did not affect the food in the new type refrigerator. The current which operated the motor was shut off when the fire started. The food was found intact and a temperature of 50 degrees in the interior when the refrigerator was opened ten hours later.

Hospital Unit to Use Electric Refrigeration

The city of Boston is soon to award contracts for the construction of a 3-story brick and stone addition to its hospital department. The new unit will be used for surgical purposes and will require electric refrigerating apparatus. Ritchie, Parsons & Taylor, 15 Ashburton Place, Boston, is the architect.

Kelvinator San Antonio Company Broadcasts Weekly

The Kelvinator San Antonio Company, of San Antonio, Texas, has started broadcasting weekly programs over radio station WOAI, having an hour program each week, known as "Kelvinator Hour," during which time popular music and novelty skits are broadcast. The programs have proven popular.

Now Known as Electrical League of Utah

Announcement has been made of the change in name of the Rocky Mountain Electrical Cooperative League to the Electrical League of Utah. The address remains at 215 Kearns Building, Salt Lake City, Utah.

W. D. McElhinny Married

William Dunbar McElhinny, vice-president in charge of sales of the Copeland Products Incorporated, and Miss Elizabeth Wilson, daughter of Mr. and Mrs. John Frederick Wilson, of New York and Cotuit, Mass., were married in New York City, February 10. The ceremony was performed at the "Little Church Around the Corner," the Church of The Transfiguration, Episcopal, on Twenty-ninth Street near Fifth Avenue. Friends and relatives of the couple attended the wedding. Mr. and Mrs. McElhinny will make their home in Detroit.

Benjamin Electric Marketing Crysteel Cabinets

Benjamin Electric Mfg. Co., Chicago, large manufacturers of electrical wiring supplies and lighting specialties, has announced a line of electric refrigerator cabinets designed for use with any mechanical unit. "Crysteel" is the trade name of the new product.

NEW BOOKLETS AND LEAFLETS

Superior

The Superior Iceless Refrigerator, Inc., Hanna Building, Cleveland, O., has issued a 3 1/2 x 6 leaflet, entitled, "Yes—Make Your Own Ice!"

McCray

The McCray Refrigerator Sales Corporation, Kendallville, Ind., has issued an attractive two-color 50-page catalogue, 7 x 10 inches, entitled, "Refrigerators for Residences." The different refrigerator models are pictured and described, and a partial list of prominent homes, McCray equipped, were pictured.

Northey

The Northey Manufacturing Co., Waterloo, Ia., has issued a 150-page catalogue in three colors, 10 1/2 x 7 1/2 inches, profusely illustrated. The catalogue illustrates and describes the Northey commercial refrigerators and the Northey method of dry air refrigeration.

Servel

The Servel Corporation, New York City, has issued the following three-color letter insert folders: "When Does Food Go Bad?" "North of Fifty," "Now You Can Choose with Full Confidence."

Crystal

The Crystal Refrigerator Co., Fremont, Neb., have recently issued Folder No. 89, entitled, "Crystal and White Steel Refrigerators for Ice and Electric Refrigeration." The folder is in two colors and is 3 1/2 x 8 1/2 inches in size.

CONVENTION DATES

National Electrical Manufacturers' Association, Briarcliff Manor, N. Y. March 17-18. Secretary, Frederick Nicholas, 30 E. 42nd St., New York City.

Electrical Manufacturers Council, Hot Springs, Va., June 13-18. Secretary, Frederick Nicholas, 30 E. 42nd St., New York City.

Electrical Safety Conference, New York City, May 20 and June 15. Secretary, R. B. Shepard, 109 Leonard St., New York City, N. Y.

Illinois State Electric Association, Springfield, Illinois. March 17-18. Secretary, R. V. Prather, Springfield, Ill.

National Association of Manufacturers of Heating and Cooking Appliances, New York City, May 11-12. Secretary, A. W. Williams, 52 W. Gay St., Columbus, Ohio.

National Electric Light Association, Atlantic City, N. J. June 6-10. Secretary, Paul S. Clapp, 29 W. 39th St., New York City.

Mid-West Division (N. E. L. A.) Topeka, Kansas. May 17-19. Secretary, H. M. Davis, Lincoln, Neb.

Pacific Coast Division (N. E. L. A.), Santa Cruz, Calif. June 14-18. Secretary, S. H. Taylor, 447 Sutter St., San Francisco, Calif.

Southeastern Division (N. E. L. A.), Memphis, Tenn. April 13-15. Secretary, Paul S. Clapp, 29 W. 39th St., New York City.

Southwestern Division (N. E. L. A.), New Orleans, La. April 25-29. Secretary, S. J. Ballinger, San Antonio Public Service Co., San Antonio, Tex.

National Electrical Credit Association, Columbus, Ohio. June 16-18. Secretary, Frederick P. Vose, 1008 Marquette Bldg., Chicago, Ill.

National Fire Protection Association, Chicago, Ill. May 10-13. Secretary, A. R. Small, 109 Leonard St., New York City.

Northwest Electric Light & Power Association, Salt Lake City, Utah. June 21-24. Secretary, W. F. Miller, Spokane, Wash.

North Central Electric Association, Duluth, Minn. June 17-19. Secretary, John W. Laphorn, 351 Loeb Arcade, Minneapolis, Minn.

Oklahoma Utilities Association, Oklahoma City, Okla. March 8-10. Secretary, E. F. McKay, 307 Local Bldg., Oklahoma City, Okla.

Public Utilities Advertising Association, Denver, Colo. June 26-30. Secretary, H. Obermeyer, 72 W. Adams St., Chicago.

Society of Industrial Engineers, Chicago, Ill. May 25-27. Secretary, G. C. Dent, 608 So. Dearborn St., Chicago, Ill.

Southeastern Water & Light Association, Jackson, Miss. April 26-28. Secretary, W. F. Steiglitz, Columbia, S. C.

Southwestern Public Service Association, New Orleans, La. April 26-29. Secretary, E. N. Willis, 403 Slaughter Bldg., Dallas, Tex.

Trade Association Executives, New York City. April 27-28. Secretary, H. M. Foster, 100 Hudson St., New York City.

Electrical Supply Jobbers' Association, Greenbrier Hotel, White Sulphur Springs, W. Va., the week of May 2.

American Institute of Electrical Engineers, Kansas City, Mo. March 17-18. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

American Institute of Electrical Engineers, Bethlehem, Pa. April 21-23. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

American Institute of Electrical Engineers, Pittsfield, Mass. May 25-27. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

American Institute of Electrical Engineers, Detroit, Mich. June 20-24. Secretary, F. L. Hutchinson, 33 W. 39th St., New York City.

CLASSIFIED COLUMN

Note: Replies to advertisements with "box numbers" should be addressed to Electric Refrigeration News, 409 E. Jefferson Avenue, Detroit, Michigan.

FOR SALE

Household unit patterns for sale. A refrigerating unit built by refrigerating engineers of long standing, simple in construction and operation, noiseless. Address Box 18, Electric Refrigeration News.

SALES EXECUTIVE

For a corporation engaged in electric refrigeration; must be a man of strong personality, energy and initiative, experienced handling sales organizations, creating sales promotion plans, originating advertising ideas; for the proper man, willing to make an investment of \$15,000 or more a permanent and profitable association, with a going concern, is afforded; the strictest confidence will be given replies, which must be in detail regarding experience, &c.; no brokers. Box 15, Care Electric Refrigeration News.

QUANTITY MARKET

We need 5,000 electric refrigeration machines, capacities tenth to half ton. Prepared to offer attractive proposition to manufacturer. Sales in quantities to dairy manufacturers, no re-selling. Users requirements in proportion to volume business done. Every machine sold earns money, saves losses, improves quality, has economical value and is a necessity. Leaders in industry are now buying and enthusiastic. A conservative estimate of next eighteen months needs are 10,000 machines. No objectionable features as in domestic sales. Box 17, Care Electric Refrigeration News.

EXECUTIVE POSITION WANTED

Man of exceptional capability, several years experience electric refrigeration as accounting department head with supervision of claims, adjustments, credits and collections. Some service department experience, qualified by training, education and background to handle matters with tact and discretion, thorough experience in dealing with problems involving personnel, fidelity, leaks, etc. Have done both manual labor and handled clerical details. More recently executive assignments. Impressive testimonials from firms in basic industries. Only permanent connection considered, initial compensation \$3,500-\$4,000 per annum. Address Box 19, Electric Refrigeration News.

EXECUTIVE POSITION WANTED

A graduate engineer with 20 years of experience in the automotive and electrical refrigeration fields as sales and manufacturing executive, desires to make a permanent connection where there is real opportunity to be found. Address Box 20, Electric Refrigeration News.

POSITION WANTED

Sales executive, fifteen years experience in sales, sales promotion, sales management. Two years field supervisor in electrical refrigeration with excellent record. Age 35 years. At present employed. Open for position as branch manager, salesman or sales executive. Box 21, Electric Refrigeration News.

DIRECTORY CHANGES

Additions to the "Directory of the Executive Personnel of the Manufacturers of Electric Refrigeration Equipment and Cabinets" which appeared in the Feb. 2 issue.

ALASKA

The Alaska Refrigerator Co., Muskogee, Mich. Division Coldak Corporation, New York City.

President.....A. P. de Saas
Vice-Pres. and Direct. of Sales.....J. B. Bond
V.-Pres., Treas. and Gen. Mgr.....J. L. Gillard
Secretary.....T. W. Moffat
Advertising Manager.....A. M. Taylor

CRYSTAL

Crystal Refrigerator Co., Fremont, Neb.
President.....Frank Hammond
Vice-President.....Dan W. Stephens
Secretary.....Earl R. Hammond
Treasurer.....R. E. Hammond

KEOKUK

Keokuk Refrigerating Co., Keokuk, Iowa.
President & Genl. Mgr.....G. E. Weissenburger
Vice-Pres. & Treas.....Jno. Dillon
Sales Manager.....Jno. Dillon
Secretary.....J. O. Boyd
Engineer.....G. L. Weissenburger

KLEEN-KOLD and HUDSON

Harder Refrigerator Corp., Cobleskill, N. Y.
President.....Edgar S. Ryder
Vice-President.....Frank H. Ryder
Secy. & Treas.....George D. Ryder
Sales Manager.....Harry L. Merrill
Production Manager.....F. P. Nehrbas

SUPERIOR

Superior Iceless Refrigerator, Inc., Hanna Bldg., Cleveland, Ohio.
President.....Chas. A. Kolp
Exec. Vice-Pres.....Edw. L. Frantz
Vice-Pres. in Charge of Sales.....Chas. F. Carroll
Secretary.....E. E. Quirk
Treasurer.....M. J. Murphy
Sales Manager.....W. F. Marr
Sales Engineer.....C. E. Yates
Works Manager.....Geo. Lee Miller
Production Manager.....J. E. Massey
Vice-President.....Ford Ballantyne
V.-P., Sec.-Treas. & Direct. of Sales.....A. Meinke
Sales Manager.....A. Deb. Gaines

WARD ELECTRIC

Ward Electric Refrigerator Corp., 1221 Beaufort St., Detroit, Michigan.
President & Genl. Mgr.....L. W. Ward
Vice-President & Chief Eng.....L. E. Rollins
Secretary & Treasurer.....Loren Kuenhle
Asst. Secy. & Treas.....H. B. Jutchings
Sales Manager.....E. W. Easman
Advertising Manager.....W. A. Wallie
Production Manager.....George Moore
Service Manager.....M. S. Clay
Purchase Manager.....B. D. Church